Revision

Concept 1.1
Adaptation and Survival

1 Choose the correct answer:

1. _____ is one of the behavioral adaptations that help animals protect themselves from enemies.
   a. Camouflage b. Extinction c. Migration d. Reproduction
2. Adaptations include changes that _____ in the environment.
   a. reduce chances of survival b. reduce life span for individuals
   c. improve species survival d. reduce reproduction process
3. What is adaptation? _____.
   a. It's the process by which new species appear.
   b. It's a property possessed by living things to help them survive.
   c. It's a form of pollination for trees.
   d. It's the process of getting rid of harmful substances in living things.
4. What happens to the organisms that cannot adapt to environmental changes?
   a. The population stays constant. b. Surviving
   c. Extinction d. The population increases.
5. The warm blood transfers to a penguin's feet through its _____.
   a. blood vessels b. skin c. head d. feathers
6. A penguin is one of the _____.
   a. reptiles b. birds c. mammals d. fish
7. A polar climate _____.
   a. is the hottest place on Earth b. is the coldest place on Earth
   c. looks like a desert climate d. looks like a forest climate
8. The extra-large _____ of a fennec fox allow(s) heat to escape and cool the fox.
   a. fur b. face c. ears d. eyes
9. The presence of thick white fur is an adaptation in _____.
   a. starred agama lizards b. polar bears
   c. fennec foxes d. forest bears
10. A panther chameleon uses its _____ like a hand.
    a. eyes b. tail c. head d. ears
11. Panther chameleons puff up (blow) their bodies with air to _____ their enemies.
    a. play with b. eat c. sleep d. scare

12 _____ cover(s) the body of Arctic foxes.
a. Heavy hair b. Thin fur c. Many feathers d. Thick fur

13 _____ pant to lower their bodies temperature.
a. Whales b. Foxes c. Penguins d. Bats

14 Animals that live in a hot environment have _____ ears to allow heat to escape and be cool.
a. small b. short c. long d. sharp

15 Which of the following is an example of camouflage?
a. A camel's broad feet b. A camel's hump
c. Powerful parrot wings d. A fox's brown fur

16 An eagle is a kind of bird that eats meat. Its beak is strong and sharp. This structural adaptation helps it to _____.
a. rip meat b. see c. escape d. find a shelter

17 _____ can live in both fresh and salt water.
a. Polar Bears b. Bull Sharks c. Dolphins d. Penguins

18 _____ puff up (blow) their bodies with air to scare their enemies.
a. Bats b. Snakes
c. Panther chameleons d. Agama lizards

19 Bull sharks can live in _____.
a. fresh water only b. seas and mud
c. rivers, seas, and oceans d. salt water only

20 One of the structural adaptations of water lily is that it has _____.
a. long roots b. sharp spines c. tiny leaves d. wide leaves

21 The tree that stores water in its trunk is _____ tree.
a. kapok b. acacia c. pine d. water lily

22 Both of acacia trees and kapok trees have the same _____.
a. habitat b. shape c. roots d. trunk

23 The roots of palm plants help them to _____.
a. stand strong against the wind b. reach the underground water
c. stay steady in the soil d. all the previous answers

24 In the process of respiration (inhalation), _____ gas enters the lungs.
a. oxygen b. carbon dioxide c. nitrogen d. hydrogen

25 The food remains inside the human stomach for _____.
a. many hours b. many days c. a few seconds d. a few minutes

26 Stomach is a part of the digestive system that _____.
a. chews food b. converts solid food into liquid
c. absorbs nutrients from the food d. delivers food into the esophagus

27 Digestion of food starts in the _____ .
a. esophagus b. lungs c. mouth d. stomach

28 The long winding tube that is more than 6 meters long is called _____
a. small intestine b. esophagus c. large intestine d. stomach

29 All the following are components of the digestive system, except _____ .
a. lungs b. stomach
c. small intestine d. large intestine

30 The esophagus is part of the digestive system that _____ .
a. chews the food b. transfers food to the stomach
c. absorbs nutrients from food d. transfers air to the lungs

31 Fish extracts oxygen from water by their _____ .
a. skin b. gills c. lungs d. fins

2 Complete the following sentences using the words between the brackets:

1 The fat layer under the animal's skin in order to warm it is a _____ adaptation. (structural - behavioral)

2 The colorful scales in desert lizards is considered a _____ adaptation. (structural - behavioral)

3 A burrow is an excellent place for fennec foxes to stay _____ during the day. (warm - cool)

4 Mangrove trees grow in _____ . (fresh water - salt water)

5 The cactus plant has spines that protect it from being eaten by desert animals, and this is considered a form of _____ . (behavioral adaptation - structural adaptation)

6 The leaves of _____ trees look like your hand. (kapok - acacia)

7 Your _____ mix and grind the food inside your mouth. (teeth - teeth and tongue)

8 _____ is a tube with muscles that pushes the food into the stomach. (Trachea - Esophagus)

9 During exhalation, _____ gas comes out of the lungs. (oxygen - carbon dioxide)

10 The human body uses the _____ system to get nutrients from food. (respiratory - digestive)

11 The lungs are one of the important organs in the _____ system. (respiratory - digestive)

12 The process of pulling air in and pushing air out of the body is called _____ . (respiration - digestion)

13 The diaphragm rises up during _____. (inhalation - exhalation)

14 Fish breathe _____ gas which is dissolved in water. (oxygen - carbon dioxide)

15 _____ destroys the lungs and causes many diseases. (Breathing - Air pollution)

3 Put (✓) or (✗):

1 Adaptation is the change of the structure or behavior of an organism's body to survive. ( )

2 Foxes have a strong sense of hearing. ( )

3 Polar bears have extra-large ears to lose heat. ( )

4 Fennec foxes live in deserts, while caracals live in forests. ( )

5 Fennec foxes feed on fruits only. ( )

6 The feet of the penguin do not freeze because they have a layer of fat. ( )

7 The body of a polar bear is covered with thick fur. ( )

8 Black bears have dark fur to hide among trees. ( )

9 The fur that some animals possess to protect them from the cold is a behavioral adaptation. ( )

10 The migration of birds to search for food is considered a behavioral adaptation. ( )

11 Some animals that live in cold climates have long ears to help them maintain their body temperature. ( )

12 Animals digging trenches is a form of structural adaptation. ( )

13 Animals can't eat barbary figs because of their sharp spines. ( )

14 Plants have two types of adaptation, structural and behavioral. ( )

15 Plants need long roots that extend deep into the soil to survive in the water scarcity. ( )

16 Sending a smelly message through acacia trees is a behavioral adaptation. ( )

17 Acacia trees grow in the Amazon forest. ( )

18 The needle leaves of pine trees help them lose water. ( )

19 All living organisms need food and oxygen gas to get energy. ( )

20 A pharynx is a common cavity between the digestive and the respiratory systems. ( )

21 Food is turned from a simple form into a complex one in digestion. ( )

22 Your teeth crushes food inside your mouth during chewing. ( )

23 The absorption of the digested food takes place in the stomach. ( )
24 The large intestine absorbs nutrients from the waste. ( )
25 The food passes through the large intestine before it goes to the small intestine. ( )
26 The respiratory system is responsible for the entry of air into the body. ( )
27 When running and making an effort, the number of breathing times decreases. ( )
28 During exhalation, the diaphragm moves upward and relaxes. ( )
29 Carbon dioxide gas is important for the respiration of animals. ( )
30 Exhaled air is loaded with oxygen. ( )
31 Adult frogs breathe using their gills. ( )
32 Amphibians include frogs and salamanders. ( )
33 Frogs are reptiles, while panther chameleons are amphibians. ( )
34 Man cannot restore the ecosystem in any way. ( )
35 Water pollution affects fish, but doesn't affect humans or plants. ( )

4 Write the scientific term:

1 It's the change in a living organism's body or its behavior to be able to survive in its environment.
2 It's a type of adaptation in which the living organism blend in with the surroundings to hide from its prey or predator.
3 It's a change in the structure of the living organism's body to cope with its environment conditions.
4 It's a strategy of camouflage that helps the bull shark sneak up on its prey.
5 It's the process of breaking down food into nutrients to get energy.
6 It's a muscle that has an important role in the respiration process.
7 They're living organisms that live in a moist environment and have two ways of respiration.
8 It's the structure that helps fish to respire underwater.
9 They're air sacs surrounded by blood vessels in the respiratory system.
10 It's a bird that has weaved blood vessels in its feet and toes.

5 Complete the following sentences using the words between the brackets:

1 (Respiration - Water lily - buttress roots)

a. The _____ has wide floating leaves.

b. _____ includes inhalation and exhalation processes.

c. A kapok tree has _____ to fix it in the soggy soil.

2 (penguins - Arctic foxes - bull shark - Fennec foxes)

a. _____ pant to lower their bodies temperature.

b. _____ and _____ are from the animals that can live in the cold weather.

c. A _____ can sneak up on its prey using countershading.

6 Choose from column (A) what suits it in column (B):

A

Column (A)	Column (B)
1 Acacia trees	a. absorb oxygen directly from water through their skin.
2 Amphibians as frogs	b. are little air sacs found in the lungs.
3 Alveoli	c. use a camouflage strategy called countershading.
4 Bull sharks	d. use wind to send a smelly message.

1 _____ 2 _____ 3 _____ 4 _____

B

Column (A)	Column (B)
1 An Arctic fox	a. has hand-shaped leaves.
2 A bull shark	b. lives in fresh water only.
3 A kapok tree	c. has short ears and legs
4 A water lily	d. lives in salt water only.
5 A mangrove tree	e. lives in fresh water and salt water.

1 _____ 2 _____ 3 _____ 4 _____ 5 _____

C

Column (A)	Column (B)
1 A gas that is necessary for respiration.	a. Carbon dioxide gas
2 It's a process of pushing air into the body and outside it.	b. Respiration
3 A gas produced from respiration.	c. Oxygen gas

1 _____ 2 _____ 3 _____

D

Column (A)	Column (B)
1 Pharynx	a. connects the throat to the stomach.
2 Camouflage	b. is a type of adaptation that helps an animal to hide.
3 Esophagus	c. is a common organ in the digestive and respiratory systems.
4 Diaphragm	d. is a muscle that plays an important role in breathing (respiration).

1 _____ 2 _____ 3 _____ 4 _____

7 Cross out the odd word:

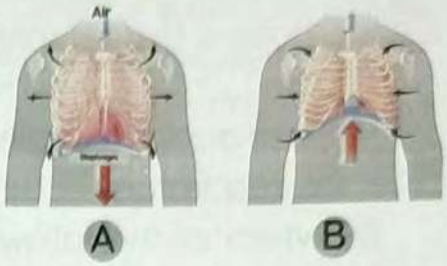
1 Camel – Fennec fox – Arctic fox – Agama lizard
2 Penguin – Polar bear – Agama lizard – Arctic fox
3 Lungs – Alveoli – Gills – Diaphragm
4 Saliva – Stomach – Esophagus – Small intestine

8 Classify the type of adaptation by putting the letter (S) for structural adaptations and the letter (B) for behavioral adaptations:

1 Producing poison in acacia trees.
2 Panting in fennec foxes.
3 The tan-colored fur of a fennec fox.
4 A chameleon can move each eye in a different direction.
5 Rabbits have long and strong hind legs that help them jump quickly and escape in dangerous times.
6 Some plants have spines to defend themselves against enemies.

9 Answer the following questions:

1. If you find a butterfly that have a color like the color of the tree it lives on, this phenomenon is called _____.
2. Study the opposite two figures. Identify the name of each of the two processes in figures A and B:



   a. Figure A: _____
   b. Figure B: _____
   c. What happens to the diaphragm in figure (A)? _____.
3. The system that digests food to produce energy is the _____.
4. Chameleons can move each of their eyes in a different direction, this adaptation helps them _____.
5. Some dogs live in a cold environment, while some live in a hot environment. In your opinion, which one has thick fur, the ones living in the cold environment or the hot environment? And why? _____.
6. The leaves of plants that float above the surface of the water are so wide that they can _____.
7. Animals that have a thick layer of fat under their skin are animals that live in a _____ environment
8. Mention one animal and one plant that live in rainforests.

_____

10 Give a reason for:

- Polar bears have thick fur.

_____

11 What happens if:

- The diaphragm contracts and moves downward?

_____

Revision

Concept 1.2
Senses at Work

1 Choose the correct answer:

1. The _____ system helps us to translate messages (stimuli) that come from our surroundings.
   a. respiratory b. digestive c. circulatory d. nervous
2. Which of the following carry the message from your eyes to your brain when you see something?
   a. Nerves b. Muscles c. Veins d. Glands
3. Your sensation of hot weather depends on the sensory receptors in your _____ .
   a. eyes b. skin c. nose d. ears
4. Bats become active _____ .
   a. in the morning b. at noon c. at night d. all day
5. A dolphin depends on _____ to locate its prey and objects underwater.
   a. its memory b. its sense of smell
   c. echolocation d. its sense of touch
6. Your _____ is the sensory organ for seeing objects
   car b. tongue c. nose d. eyes
7. When you determine a sweet or bitter taste, you use your _____ .
   a. tongue b. eyes c. ears d. nose
8. All the following are components of the nervous system, except the _____ .
   a. spinal cord b. heart c. nerves d. brain
9. A bat is a _____ animal.
   a. nocturnal b. morning c. non-flying d. diurnal
10. A/An _____ is characterized by the ability to move its head in all directions.
    a. panther chameleon b. jerboa
    c. human d. owl
11. The _____ is the main control center in your body.
    a. stomach b. brain c. lung d. liver
12. To detect the place of a table in a completely dark room, you can depend on your sense of _____ .
    a. sight b. touch c. taste d. hearing

13 When your eyes see a red traffic light, that's a signal to _____ .
a. increase your speed b. decrease your speed
c. keep your speed as it is d. stop instantly

14 The organ that is responsible for the sense of sight is the _____ .
a. ear b. tongue c. nose d. eye

15 Bats use their _____ to get information about their surroundings in the dark
a. eyes b. tongue c. ears d. hands

16 When an object comes close to your eyes suddenly, _____ occur(s).
a. a reflex action b. a fast response
c. a slow response d. a and b

17 Reading and writing are common types of communication in the _____ world.
a. animals' b. plants' c. humans' d. birds'

18 Animals can communicate with each other through _____ .
a. sound and light b. talking
c. reading d. writing

19 Humpback whales use singing to _____ .
a. heat themselves up b. hide from enemies
c. communicate d have fun

20 Humpback whales sing during _____ months, which is the mating season.
a. winter b. summer spring d. autumn

2 Complete the following sentences using the words between the brackets:

1 The time taken for the body to receive information from the environment is the _____ . (reflex action - response time)

2 The _____ is an animal that can escape from its enemies because of the length of its hind legs. (Arctic fox - jerboa)

3 The eyes send messages to the _____ through the nerves. (brain - spinal cord)

4 A dolphin can locate its prey through its sense of _____ . (hearing - sight)

5 There's an integration between our senses and the _____ system to interact with the surroundings. (respiratory - nervous)

6 _____ can communicate by making sounds like a chatter. (Mongooses - Ants)

7 Sensory receptors send messages from _____.
(the brain to the muscles - the sensory organs to the brain)

8 The echolocation feature depends on the _____.
(hearing sense - sight sense)

9 The skin is an important organ of the _____ system.
(respiratory - nervous)

10 The ____ passes through the human's backbone. (spinal cord - brain)

11 The echo is turned into vibrations in the _____ that is/are used by blind people. (goggles – cane)

12 _____ sing underwater to communicate with each other.
(Bull sharks - Whales)

13 The winter months are considered the _____ season for humpback whales. (mating - feeding)

14 Humpback whales and dolphins communicate by their _____ sense
(hearing - sight)

15 A group of ants send a _____ message to communicate with each other. (visual - smelly)

16 _____ communicate using their sense of smell.
(Dolphins - Ants)

3 Put (✓) or (✗):

1 The ear is the organ that detects the sound waves produced from a radio. ( )

2 The brain is responsible for processing information. ( )

3 Bats use their sense of smell to avoid dangers. ( )

4 Humans have a stronger sense of hearing than dolphins. ( )

5 A person can identify the spoiled food through his/her sense of hearing. ( )

6 Ants can know the sweet taste by their sense of smell. ( )

7 The nervous system works separately from the five senses. ( )

8 The sensory receptors in your nose receive the scent of a delicious pizza. ( )

9 The skin is the sensory organ that makes you feel the smoothness of the cloth. ( )

10 Dogs have super senses of smell and sight to recognize friends. ( )

11 Both owls and panther chameleons have a sharp sense of hearing. ( )
12 The jerboa is a rodent that can be found at the same habitat of the caracal. ( )
13 Dolphins have a strong sight sense. ( )
14 Soldier ants send a smelly message in case of a shortage of food. ( )
15 Echo helps dolphins locate their prey in air. ( )
16 The reaction time of a living organism must be less than one second to escape from any danger. ( )
17 The reflexes are fast messages you are barely aware of. ( )
18 Eyes are considered sensory organs of light, not sources of light. ( )
19 Humpback whales change their sound pitch according to the season. ( )
20 Humpback whales can sing underwater. ( )
21 Humpback whales communicate with each other through flashing. ( )
22 Animals can use more than one sense to communicate. ( )
23 Scout ants are responsible for alarming the colony in danger. ( )
24 Bats use their ears to "see" in the dark. ( )

4 Write the scientific term:

1 It's the main control center of the human body.
2 It's a property by which a bat can locate its prey insects through the sound reflected from them.
3 They're animals that are active at night.
4 They are nerves found in the sensory organs to receive information from the surroundings.
5 It's the time taken by a living organism to respond to a danger.
6 It's the system that is responsible for the reflex actions.
7 It's a desert rodent that has large ears and long, hind legs.
8 Ants that are responsible for finding food.
9 Ants that send smelly messages to scout ants when food is low.
10 It's the sense used to differentiate between smooth and rough surfaces.
11 They're messages that are transmitted so fast that you are barely aware of them.

5 Cross out the odd word:

1. Taste - Smell - Hearing - Eyes
2. Reading - Writing - Echolocation - Language
3. Bats - Ants - A blind person's cane - Dolphins

6 Choose from column (A) what suits it in column (B):

A

Column (A)	Column (B)
1 A jerboa	a. depends on echolocation to find its prey.
2 An owl	b. depends on its hind legs to jump in a zigzag path.
3 A bat	c. is an animal that has a bowl-like face.

1 _____ 2 _____ 3 _____

B

Column (A)	Column (B)
1 It is similar in its processing of information to a computer.	a. the spinal cord.
2 They carry messages from the brain to all body parts and vice versa.	b. reaction time.
3 When a strange object approaches your eyes,	c. The brain
4 The time taken by a living organism to react is	d. Nerves
5 A bundle of nerves that passes through the backbone is	e. the reflex action occurs.

1 _____ 2 _____ 3 _____ 4 _____ 5 _____

7 What happens if:

1. Your foot touches a nail on the ground?
2. The hind legs of a jerboa are short?

8 Answer the following questions:

1. A dolphin can locate living organisms and things under the surface of the water; explain the feature that helps the dolphin to do so.
2. Rabbits have strong and long hind legs that help them jump quickly and escape in dangerous times. Determine the type of adaptation.

Revision

Concept 1.3
Light and Sight

1 Choose the correct answer:

1 _____ energy affects the sensory receptors in the eyes, causing vision.
a. Sound b. Kinetic c. Light d. Magnetic

2 The organ responsible for the sense of sight is the _____ .
a. ears b. tongue c. nose d. eyes

3 Each of the following is considered a source of light, except _____ .
a. fire b. the Sun c. the lamp d. the eye

4 Which of the following is a source of light?
a. The moon b. Our eyes c. Fire d. Mirror

5 The eyes of nocturnal animals are _____ the human eye.
a. smaller than b. bigger than c. the same as d. narrower than

6 Both fishing cats and owls _____ .
a. can swim b. are nocturnal animals
c. can fly d. can rotate their eyes

7 Humans have _____ eyes than nocturnal animals.
a. bigger b. smaller c. stronger d. sharper

8 The pupils of nocturnal ani[illegible]pen _____ humans' pupils.
a. wider than b. similar to c. narrower than d. shorter than

9 The eyes of _____ glow in the dark.
a. bats b. cats c. penguins d. snakes

10 What feature of light helps you see yourself in the mirror?
a. Refraction b. Ray length c. Shortness d. Reflection

11 Light travels in _____ lines.
a. curved b. straight c. zigzag d. circular

12 Which of the following material does not form a shadow when light falls on it?
a. Wood b. Glass c. Carton d. Tree

13 Which of the following allows light to pass through it?

a. Rock b. The moon c. Wood d. Glass

14 A mirror makes the falling light rays _____ .

a. pass through it b. reflect in different directions

c. reflect in the same direction d. diffuse like that of rough surfaces

15 _____ is/are considered from transparent objects.

a. Metals b. Lenses c. Mirrors d. Wood

16 All the following are transparent materials, except _____ .

a. glass b. air c. paper d. lenses

17 All of the following materials are opaque, except _____ .

a. wood b. the human body c. water d. iron

18 When light falls on a dark surface, _____ .

a. the surface absorbs the light b. light passes through it

c. the light is refracted d. nothing happens

19 A firefly is not a bird, but it is a type of _____ .

a. amphibians b. lizards c. beetles d. reptiles

20 Changing the pattern of lighting up in a firefly is an example of _____ adaptation(s)

a. structural and behavioral b. physical and behavioral

c. structural d. behavioral

21 _____ produce a chemical reaction inside their bodies.

a. Butterflies b. Fireflies

c. Houseflies d. Owls

22 Raising your thumb up or lowering it down is a kind of _____ .

a. colors b. codes

c. waves d. lights

2 Complete the following sentences using the words between the brackets:

1 The eye pupils of owls open _____ than the eye pupils of humans. (narrower - wider)

2 _____ is from the sources of light. (The moon - Fire)

3 Air and water are _____ materials and you can see things through them. (transparent - opaque)

4 Smooth surfaces reflect light in _____ direction(s). (the same - different)

5 Light does not pass through _____ matter. (transparent - opaque)

6 _____ is from the opaque objects. (Carton - Glass)

7 When light is scattered from a surface in different directions, this surface is _____ . (rough - smooth)

8 The different languages are considered as _____ . (codes - lights)

3 Put (✓) or (✗):

1 Both humans and animals need a light source to see. ( )

2 The human eyes can see in the dark clearly. ( )

3 Humans can see in dim light better than in bright light. ( )

4 The moon is considered a light source. ( )

5 All nocturnal animals have excellent night vision. ( )

6 Nocturnal animals have eyes that are bigger than the human eyes. ( )

7 Some animals can see clearly at night, such as a wild cats. ( )

8 The fishing cat can't hunt in the dark. ( )

9 Cats have excellent night vision, while bats don't. ( )

10 Wood is a transparent object that allows light to pass through it. ( )

11 The wooden board reflects less light than the mirror. ( )

12 The opaque materials do not let the light pass through. ( )

13 Shadow is formed when light hits a transparent object. ( )

14 Polished surfaces, as mirrors, reflect light rays in the same direction. ( )

15 The light reflection depends on the smoothness of the objects' surface. ( )

16 If I can see my face clearly on a surface, this means that it is a smooth, shiny surface. ( )

17 A written language helps people communicate. ( )

18 Fireflies can communicate with each other using sound energy. ( )

19 Humans use light to communicate, such as using traffic lights. ( )

20 In order for the code to be translated, the brain must identify it. ( )

21 Red and green traffic lights are codes. ( )

4 Write the scientific term:

1 It's the visible form of energy that travels in the form of waves.

2 It's the organ that is affected by light and is responsible for sight.

3 They're objects that emit their own light.

4 It's a tool used by people, and it works as the eyes of fishing cats at night.

5 It's a type of wild cat that has eyes that glow at night.

6 They're materials that allow light to pass through.

7 They're materials that don't allow light to pass through.

8 They are materials that reflect the light rays in one direction.

9 They are materials that diffuse light in different directions.

5 Cross out the odd word:

1 Lenses – Air – Brick – Water

2 Sun – Moon – Fire – Candle

3 Wood – Glass cup – Book – Wall

4 Paper – Wood – Cloth – Mirror

6 Classify the following materials into transparent and opaque materials:

1 A chair made of wood: _____ .

2 An aluminum pot: _____ .

3 Air: _____ .

4 Glasses of glass: _____ .

7 Classify the following materials into transparent and opaque materials:

(Rock - Glass - Window)

.....

8 Classify the following materials into smooth and rough materials:

(Mirror - Cloth - Metal - Wood)

.....

9 Choose from column (A) what suits it in column (B):

A

Column (A)	Column (B)
1 The Sun	a. reflect light rays in one direction.
2 Shadow	b. is formed when the light strikes a human body.
3 The moon	c. is a source of light.
4 Smooth surfaces	d. is shiny but is not considered a source of energy.

1 _____ 2 _____ 3 _____ 4 _____

B

Column (A)	Column (B)
1 Sight	a. is the visible form of energy that is transmitted in the form of waves.
2 Light	b. is a structural adaptation in the eyes that provides some animals with better vision at night.
3 The mirror-like membrane	c. is the sense that helps us see.

1 _____ 2 _____ 3 _____

C

Column (A)	Column (B)
1 Rough surfaces	a. is a type of communication for humans only.
2 Light travels in	b. light up their wings to attract a mate.
3 Whatching TV	c. diffuse light in different directions.
4 Fireflies	d. straight lines.

1 _____ 2 _____ 3 _____ 4 _____

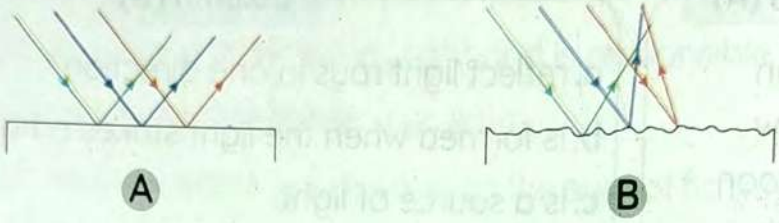
10 Look at the path of the light rays in pictures (A) and (B).

- Determine which of the two objects is opaque and which is transparent.

(A): _____ .

(B): _____ .

11 Which of the following surfaces represents the reflection of light rays from wood and what is the reason?



12 Your friend wants to prevent the light from entering his room.

Suggest him some materials that he can use on the window to prevent the light from entering his room. _____

13 Give reasons for:

1. The moon is not considered a source of light.
2. A candle is considered a source of light.
3. Nocturnal animals can see better than humans at night.
4. A cat's eyes glow in the dark.
5. The eyes of humans do not glow like cats in the dark.
6. You can see an object placed behind a glass cup.
7. A shadow is formed when light falls on an opaque object.
8. None of the light energy passes through the opaque objects.

14 What happens if:

1. Light falls on a book?
2. Light falls on a rough surface?

Revision

Concept 2.1
Starting and Stopping

1 Choose the correct answer:

1. When an object is in motion, this means that its _____ changes.
   a. color b. shape c. size d. position
2. When you move something towards you, this represents _____ .
   a. pushing force b. light energy c. pulling force d. sound energy
3. When you sit on a chair, the force of gravity is _____ and holding you on the chair
   a. pulling you upward b. pulling you downward
   c. pushing you upward d. pushing you downward
4. Push or pull actions are considered types of _____ .
   a. forces b. devices c. energies d. adaptations
5. The force that pulls the objects down towards the center of the Earth is _____ force.
   a. gravity b. pushing c. air d. wind
6. The force that occurs when an object rubs against another object is called _____ force.
   a. pull b. push c. gravity d. friction
7. You can see the movement of all the following objects, except the movement of _____ .
   a. a flying airplane b. a running horse
   c. sea waves d. the planet Earth
8. The force that slows down (decreases) the object's speed is called _____ .
   a. push b. gravity c. friction d. pull
9. _____ is the ability to do work.
   a. Energy b. Force c. Push d. Pull

10 All the following are examples of pulling force, except _____

a. pulling the rope
b. kicking a ball
c. opening the desk's drawer
d. lifting up your bag

11 When a body moves forward, the change that occurs is in _____

a. the position of the body
b. the size of the body
c. the mass of the body
d. Earth's gravity

12 Objects need a force to move, this force is represented in _____.

a. pushing only
b. pulling only
c. pushing and pulling together
d. the Earth gravity only

13 When a ball stands on the ground without moving, the forces acting on it are _____.

a. unbalanced
b. balanced
c. pushing it up
d. not equal

14 In the following figure, the body is under the effect of _____.

a. balanced forces and is moving to the right
b. forces and is moving to the left
c. unbalanced forces and is moving to the right
d. unbalanced forces and is moving to the left

15 The energy gained by a ball when it falls from above is _____ energy.

a. potential
b. kinetic
c. light
d. chemical

2 Complete the following sentences using the words between the brackets:

1 The car slows down its speed when it runs out of fuel, as a result of _____. (gravity - friction)

2 The _____ forces makes the static object move. (balanced - unbalanced)

3 The force that pulls things down is _____. (friction - gravity)

4 When playing the tug-of-war game, if each team pulls the rope with equal force, the forces are _____. (balanced - unbalanced)

5 To slow down the speed of a Shockwave truck, the drivers use _____ parachutes. (5 - 3)

3 Put (✓) or (✗):

1 Air resists the motion of a car. ( )

2 Gravitational force is an upward pulling force. ( )

3 When a pen falls from your hand, the acting force is gravity. ( )

4 When a static body is affected by balanced forces, the body moves. ( )

5 The seesaw moves up and down because the forces that act on it are unbalanced. ( )

6 When the position of the body changes from a fixed point, we can say that the body moves. ( )

7 The force that slows down or decreases the speed of an object is gravity. ( )

8 Gravity pulls objects towards the center of the Earth. ( )

9 When a car crashes into a wall, it will not stop. ( )

10 We eat food to gain energy. ( )

11 Unbalanced forces cause a change in the object's position. ( )

4 Write the scientific term:

1 It's the force that pulls objects towards the center of the Earth.

2 It is a push or pull that is applied to an object making change its position.

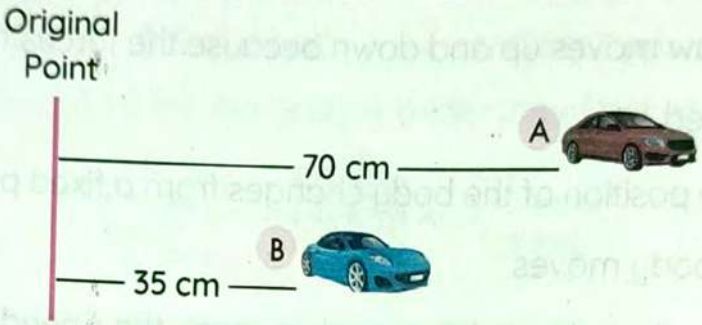
3 It's the force that arises when objects rub against each other.

5 Choose from column (A) what suits it in column (B):

Column (A)	Column (B)
1 Friction	a. is the ability to do work.
2 Motion	b. is the force that pulls things downwards.
3 Energy	c. is the change of an object's position.
4 Gravity	d. is a force that arises between the surfaces of two contacting bodies.

1 _____ 2 _____ 3 _____ 4 _____

6 Look at the following figure, then answer the question below:



- Which of these toy cars is affected by greater force? (Give reason for your answer.)

_____

7 When you sit on the chair without moving:

- What is the name of the force that pulls you downward?

_____

_____

8 What happens if:

- A boy on a bike stops pedaling?

_____

_____

Revision

Concept 2.2
Energy and Motion

1 Choose the correct answer:

1 Which ball has kinetic energy but not potential energy?

a. A ball rolling down a ramp
b. A ball sitting on a high shelf
c. A ball bouncing up and down
d. A ball rolling on a flat sidewalk

2 Which of the following can store energy?

a. Battery
b. Wire
c. Plastic
d. Rubber

3 The energy gained by a ball when it falls from above is _____.

a. potential energy
b. kinetic energy
c. light energy
d. chemical energy

4 When an object moves down a ramp, its stored potential energy ____.

a. increases
b. doesn't change
c. changes to a less active form of energy
d. changes to a more active form of energy

5 The energy that is stored in an object due to its position is known as ___ energy.

a. kinetic
b. potential
c. electric
d. chemical

6 The chemical energy stored in batteries is considered a form of ____ energy.

a. potential
b. kinetic
c. heat
d. light

7 The potential energy of an object depends on _____.

a. its mass only
b. its height from the Earth's surface only
c. its mass and its height from the Earth's surface
d. its temperature

8 All type of energy can be classified into two main groups, which are ____.

a. light and sound energies
b. chemical and electrical energies
c. potential and kinetic energies
d. magnetic and thermal energies

9 Chemical energy can be stored in _____ .

a. food only
b. batteries only
c. television and food
d. food and batteries

10 The force that makes an object move a distance is called _____ .

a. work
b. potential
c. gravity
d. pull

11 _____ is the ability to do work.

a. Energy
b. Force
c. Push
d. Pull

12 When we turn on a television, _____ and _____ energies are produced.

a. sound - chemical
b. light - chemical
c. sound - light
d. solar - light

2 Complete the following sentences using the words between the brackets:

1 When a person pushes a car forward, his body begins to sweat heavily because his body _____ his stored energy. (increases - consumes)

2 The gas oven converts the _____ energy stored in the natural gas into heat energy to cook the food. (chemical - electrical)

3 What kind of energy is stored inside the battery?
(Chemical energy - Heat energy)

4 If the mass of an object decreases, this means that its kinetic energy _____ .
(increases - decreases)

5 _____ potential energy is the energy which is stored in a ball at the top of a hill.
(Chemical - Gravitational)

6 The amount of energy required to move an object through the force acting on it is called _____ .
(work - potential energy)

7 _____ is the ability to do work.
(Energy - Gravity)

8 The form of energy that can be seen is _____ energy.
(sound - light)

9 The _____ energy is a stored energy in an object due to its position.
(kinetic - potential)

10 In an electric bell, electrical energy changes into _____ energy .
(sound - light)

3 Put (✓) or (✗):

1. Any moving object has a form of energy known as kinetic energy. ( )
2. When a roller coaster slides down fast, its kinetic energy increases. ( )
3. The moving objects only have energy, while the objects that don't move have no energy. ( )
4. The chemical potential energy in the car's fuel is converted into kinetic energy while running the car. ( )
5. There is a relationship between force and energy. ( )
6. When you kick a ball, kinetic energy is produced. ( )
7. As the height of an object from the Earth's surface increases, its potential energy decreases. ( )
8. In the electric fan, the kinetic energy is converted into electrical energy. ( )
9. Energy is neither destroyed nor created from nothing. ( )
10. A static ball on the ground will move if it is affected by an unbalanced force. ( )
11. A static object at the top of the ramp has no kinetic energy. ( )
12. The chemical energy in a battery can be converted into electrical energy. ( )
13. Any moving object has a form of energy known as light energy. ( )
14. Thermal energy is a type of kinetic energy. ( )
15. Sound and light energies transfer in the air in the form of waves. ( )
16. Unbalanced forces cause a change in an object's position. ( )

4 Write the scientific term:

1. It's the energy that the object gains due to its motion.
2. It is the ability to do work.
3. It is a force that causes an object to move a distance.

4 It's the form of energy that increases when the speed of an object increases.

5 It is the stored energy in an object due to its position.

5 Identify the correct form of energy in the following cases:

1 If a dog is barking at a cat, _____ energy reaches your ears.
(sound - light)

2 In your cell phone's battery, chemical energy changes into _____ energy.
(potential - electrical)

3 A girl is skating on the sidewalk, her body has _____ energy.
(light - kinetic)

4 Your eyes detect the _____ energy coming towards you.
(light - sound)

5 When gasoline is burned inside a bus engine, _____ energy is consumed.
(electrical - chemical)

6 If you use a flashlight on a camping trip, _____ energy comes out.
(chemical - light)

6 Choose from column (A) what suits it in column (B):

Column (A)	Column (B)
1 Food	a. increases by increasing the object's speed.
2 Kinetic energy	b. is a source of energy for humans.
3 Potential energy	c. is the stored energy in an object due to its position
	d. cannot be converted into another form of energy.

1 _____ 2 _____ 3 _____

7 Cross out the odd word:

1 Sound energy - Light energy - Thermal energy - Chemical energy

2 Sound energy - Light energy - Thermal energy - Electrical energy

3 Guitar - Flashlight - Radio - Alarm

Revision

Concept 2.3
Energy and Collisions

1 Choose the correct answer:

1. The speed of a car that travels 200 meters in 2 seconds is _____ m/s.
   a. 20 b. 40 c. 100 d. 200
2. How can we calculate the speed of an object?
   a. Speed = Distance ÷ Time b. Speed = Distance + Time
   c. Speed = Distance x Time d. Speed = Distance - Time
3. The measuring unit of the distance is _____ .
   a. km/s b. km c. seconds d. kg
4. The speed of an object is measured in _____ or meters per second.
   a. kilometers per hour b. grams per second
   c. hours per kilometer d. kilometers per kilogram
5. The result of dividing the distance traveled by the time equals _____ .
   a. the energy b. the force c. the mass d. the speed
6. A human is slower than a horse as the human covers _____ the horse at the same time.
   a. less distance than b. greater distance than
   c. double the distance of d. twice the distance of
7. Which of the following is a measuring unit of speed?
   a. hr/km b. sec/m c. kg/sec d. m/sec
8. The airbag is made of _____ .
   a. carton b. nylon c. rubber d. cotton
9. Kinetic energy isn't affected by the _____ of the object.
   a. mass b. speed c. color d. weight
10. If a car covered a distance of 10 meters in a time of 2 seconds, the speed of the car is _____ .
    a. 50 m/sec b. 20 m/sec c. 20 m/sec d. 5 m/sec
11. The speed of the train which covered 400 m in 2 sec equals ____ m/sec.
    a. 400 b. 100 c. 200 d. 2

12 The _____ protect(s) the driver from moving forward in a collision.
a. glass window b. dashboard c. seatbelt d. tires

13 When the object is moving faster, it has _____ kinetic energy.
a. the same b. more c. less d. slow

14 A very big truck needs _____ to move.
a. a very small engine b. a small engine
c. a very big engine d. no engine

15 When two objects collide, _____ is transferred between them.
a. time b. distance c. energy d. nothing

16 During a collision between _____, the force of the collision increases, and the risks increase.
a. a bicycle and a car b. two cars
c. a train and a car d. two trains

2 Complete the following sentences using the words between the brackets:

1 During a car crash, the _____ is inflated with a gas to provide a soft cushion. (seatbelt - airbag)

2 Airbags inflate automatically when the _____ in the car detect(s) a crash. (seatbelt - sensors)

3 When objects crash, _____ transfers between them. (distance - energy)

4 As a result of hitting a ball with a bat, the _____ of the ball will change. (direction - mass)

5 Speed is a _____ quantity. (physical - chemical)

6 Fast-moving objects cause _____ danger than slow-moving objects. (less - more)

7 The big trucks need _____ to move. (big engines - small engines)

8 When the car's fuel completely runs out, its _____ becomes zero. (mass - speed)

9 The car needs _____ to move. (fuel - water)

10 If Noor travels with her bicycle a distance of 10 km in two hours, then she is moving at a speed of _____. (10 km/hr - 5 km/hr)

11 _____ absorb the energy of the car during a collision. (Airbags - Seatbelts)

12 The speed of a moving object = _____.
(Distance × Time - Distance ÷ Time)

13 When the speed of a car increases, its _____ energy increases.
(kinetic - potential)

14 On rising a ball in Newton's cradle without leaving it, it stores _____ energy.
(kinetic - potential)

3 Put (✓) or (✗):

1 Seatbelt is one of the safety equipment in cars. ( )
2 After a collision, the airbag deflates at the same speed as it inflates. ( )
3 Drivers should drive as fast as possible to avoid accidents. ( )
4 If a car covered a distance of 10 m in a time of 2 seconds, the speed of the car is 5 m/sec. ( )
5 The high-speed moving objects face less danger than the slower objects. ( )
6 The mass of a moving body affects its speed. ( )
7 As a car's speed increases, the amount of fuel used decreases. ( )
8 Because of the seatbelt, the driver cannot see the road clearly. ( )
9 The amount of energy before collision is greater than that after collision. ( )
10 A thermal energy is produced due to the friction between Newton's cradle parts. ( )

4 Write the scientific term:

1 The process in which two or more objects crash into each other and an energy transfer occurs.
2 Safety equipment that is used to prevent car passengers from moving forward when the car stops suddenly.
3 Safety equipment that provides a soft cushion when it inflates automatically with gas during a collision.
4 A heavy steel ball that swings on a cable and is used in the destruction of building parts.

5 Choose from column (A) what suits it in column (B):

Column (A)	Column (B)
1 Gravity	a. is the energy stored inside the body due to its position.
2 Friction	b. is the force that pulls things downwards.
3 Speed	c. is a force that arises between the surfaces of two contacting bodies.
4 Potential energy	d. is the energy stored inside dry batteries.
5 Chemical energy	e. is the distance covered per time unit.

1 _____ 2 _____ 3 _____ 4 _____ 5 _____

6 Answer the following questions:

1 Mention two of the safety equipment in the car.

.....

2 A train travels from Cairo to Alexandria for a distance of 200 kilometers in 2 hours. Find its speed.

.....

3 Calculate the speed of a train that covers 600 km in a time of 6 hours.

.....

4 Two cars moved at the same time for 20 seconds; car (a) covered a distance of 100 meters, while car (b) covered a distance of 300 meters. Which of the two cars has a higher speed?

a b

.....

Revision Model Answers

Unit 1

Concept 1

1

1 a	2 c	3 b	4 c
5 a	6 b	7 b	8 c
9 b	10 b	11 d	12 d
13 b	14 c	15 d	16 a
17 b	18 c	19 c	20 d
21 b	22 b	23 d	24 a
25 a	26 b	27 c	28 a
29 a	30 b	31 b	

2

1 structural
2 structural
3 cool
4 salt water
5 structural adaptation
6 kapok
7 teeth and tongue
8 Esophagus
9 carbon dioxide
10 digestive
11 respiratory
12 respiration
13 exhalation
14 oxygen
15 Air pollution

3

1 ✓	2 ✓	3 ✗	4 ✗
5 ✗	6 ✗	7 ✓	8 ✓
9 ✗	10 ✓	11 ✗	12 ✗
13 ✓	14 ✓	15 ✓	16 ✓
17 ✗	18 ✗	19 ✓	20 ✓
21 ✗	22 ✓	23 ✗	24 ✗
25 ✗	26 ✓	27 ✗	28 ✓
29 ✗	30 ✗	31 ✗	32 ✓
33 ✗	34 ✗	35 ✗	

4

1 Adaptation
2 Camouflage
3 Structural adaptation
4 Countershading
5 Digestion process
6 Diaphragm
7 Amphibians
8 Gills
9 Alveoli
10 Penguin

5

1 a. water lily
b. Respiration
c. buttress roots
2 a. Fennec foxes
b. Penguins, Arctic foxes
c. bull shark

6

(A) 1 d 2 a 3 b 4 c
(B) 1 c 2 e 3 a 4 b 5 d
(C) 1 c 2 b 3 a
(D) 1 c 2 b 3 a 4 d

7

1 Arctic fox
2 Agama lizard
3 Gills
4 saliva

8

1 B	2 B	3 S	4 S
5 S	6 S		

9

1 camouflage
2 a. Inhalation
b. Exhalation
c. It contracts and moves downward.
3 Digestive system
4 to search for insects and look out for enemies at the same time.
5 Cold climate, to keep their bodies warm.
6 absorb a large amount of sunligh
7 cold
8 Panther chameleon, kapok tree

10 To stay warm in cold climate.

11 The chest size increases and oxygen gas enters the lungs.

Concept ②

1

1 d	2 a	3 b	4 c
5 c	6 d	7 a	8 b
9 a	10 d	11 b	12 b
13 d	14 d	15 c	16 a
17 c	18 a	19 c	20 a

2

1 response time	2 jerboa
3 brain	4 hearing
5 nervous	6 Mongooses
7 the sensory organs to the brain	
8 hearing sense	9 nervous
10 spinal cord	11 cane
12 Whales	13 mating
14 hearing	
15 smelly	16 Ants

3

1 ✓	2 ✓	3 ✗	4 ✗
5 ✗	6 ✗	7 ✗	8 ✓
9 ✓	10 ✓	11 ✗	12 ✓
13 ✗	14 ✗	15 ✗	16 ✓
17 ✓	18 ✓	19 ✓	20 ✓
21 ✗	22 ✓	23 ✗	24 ✓

4

1 Brain	2 Echolocation
3 Nocturnal animals	
4 Sensory receptors	
5 Reaction time	
6 Nervous system	
7 Jerboa	8 Scout ants
9 Nurse ants	10 Touch
11 Reflexes (reflex actions)	

5

1 Eyes	2 Echolocation
3 Ants	

6

(A) 1 b	2 c	3 a		
(B) 1 c	2 d	3 e	4 b	
5 a				

7

1 A reflex action occurs.
2 It can't jump for a long distance and can't escape from its enemies.

8

1 Dolphins use echolocation property, where they produce sound waves that return back to the dolphins' ears when they hit the prey.
2 Structural adaptation

Concept ③

1

1 c	2 d	3 d	4 c
5 b	6 b	7 b	8 a
9 b	10 d	11 b	12 b
13 d	14 c	15 b	16 c
17 c	18 a	19 c	20 d
21 b	22 b		

2

1 wider	2 Fire
3 transparent	4 same
5 opaque	6 Carton
7 rough	8 codes

3

1 ✓	2 ✗	3 ✗	4 ✗
5 ✗	6 ✓	7 ✓	8 ✗
9 ✓	10 ✗	11 ✓	12 ✓
13 ✗	14 ✓	15 ✓	16 ✓
17 ✓	18 ✗	19 ✓	20 ✓
21 ✓			

4

1 Light	2 Eye
3 Light sources	
4 Night vision goggles	
5 Fishing cat	
6 Transparent materials	
7 Opaque materials	
8 Smooth surfaces	
9 Rough surfaces	

5

1 Brick	2 Moon
3 Glass cup	4 Mirror

6

1 Opaque	2 Opaque
3 Transparent	4 Transparent

7
1. Rock → Opaque
2. Glass, Window → Transparent

8
1. Mirror, Metal → Smooth materials
2. Cloth, Wood → Rough materials

9
(A) 1 c 2 b 3 d 4 a
(B) 1 c 2 a 3 b
(C) 1 c 2 d 3 a 4 b

10 1 Opaque 2 Transparent

11 Figure (B), because it scatters light rays in different directions.

12 Carton – cloth

13
1. Because it doesn't emit its own light, but it reflects the sunlight falling on it.
2. Because it emits its own light.
3. Because they have bigger eyes and their eyes' pupils open wider than those of the humans eyes.
4. Because they have a mirror-like membrane that reflects any light falling on it.
5. Because humans eyes don't have a mirror-like membrane like that in cats' eyes.
6. Because glass is a transparent object that allows light to pass.
7. Because an opaque object doesn't allow light to pass through.
8. Because opaque objects may absorb or reflect the light falling on them.

14
1. It forms a shadow.
2. Light rays are scattered in different directions.

Unit 2

Concept 1

1
1 d 2 c 3 b 4 a
5 a 6 d 7 d 8 c
9 a 10 b 11 a 12 c
13 b 14 d 15 b

2
1 friction 2 unbalanced
3 gravity 4 balanced
5 3

3
1 ✓ 2 ✗ 3 ✓ 4 ✗
5 ✓ 6 ✓ 7 ✗ 8 ✓
9 ✗ 10 ✓ 11 ✓

4
1 Gravity 2 Force
3 Friction force

5 1 d 2 c 3 a 4 b

6 Car (A), because it moved a longer distance than car (B).

7 Gravity

8 The bike's speed decreases till it stops.

Concept 2

1
1 d 2 a 3 b 4 d
5 b 6 a 7 c 8 c
9 d 10 a 11 a 12 c

2
1 consumes 2 chemical
3 Chemical energy
4 decreases 5 Gravitational
6 work 7 Energy
8 light 9 potential
10 sound

3
1 ✓ 2 ✓ 3 ✗ 4 ✓
5 ✓ 6 ✗ 7 ✗ 8 ✗
9 ✓ 10 ✓ 11 ✓ 12 ✓
13 ✗ 14 ✓ 15 ✓ 16 ✓

4
1 Kinetic energy 2 Energy
3 Work 4 Kineticenergy

5 Gravitational potential energy

5
1 sound
2 electrical
3 kinetic
4 light
5 chemical
6 light

6 1 b 2 a 3 c

7 1 Chemical energy
2 Light energy
3 Flashlight

Concept 3

1
1 c 2 a 3 b 4 a
5 d 6 a 7 d 8 b
9 c 10 d 11 c 12 c
13 b 14 c 15 c 16 d

2
1 airbag
2 sensors
3 energy
4 direction
5 physical
6 more
7 big engines
8 speed
9 fuel
10 5 km/hr
11 Airbags
12 Distance ÷ Time
13 kinetic
14 potential

3
1 ✓ 2 ✓ 3 ✗ 4 ✓
5 ✗ 6 ✓ 7 ✗ 8 ✗
9 ✗ 10 ✓

4
1 Collision
2 Seatbelt
3 Airbag
4 Wrecking ball

5
1 b 2 c 3 e 4 a
5 d

6
1 Seatbelts and airbags
2 Speed = $\frac{\text{Distance}}{\text{Time}} = \frac{200}{2}$
= 100 km/hr
3 Speed = $\frac{\text{Distance}}{\text{Time}} = \frac{600}{6}$
= 100 km/hr
4 Car (B)

Final Revision for first term

Complete the following sentences using the following words:

(1) (spines – cool – hot – warm blood – darker – structural – cold blood – polar)

1-In penguins, blood vessels bring …… upward from the feet, but bring …… downward to the feet.
2-Starred agama lizards live in extreme …… weather.
3- Both of arctic fox and pine tree survive in …… habitat.
4-The Barbary fig plant has …… that protect it from being eaten by desert animals, and this is considered as …… adaptation.
5-Animals that live in forests have fur …… than that of polar animals.
6-A burrow is an excellent place for fennec fox to stay …… during day.

---

(2) (eyes – tongue – salt – structural – ears – behavioral)

1-The fat layer under the animal's skin to warm it is …… adaptation.
2-Some animals migrate at certain times of the year. This type of adaptation is called …… adaptation.
3-Mangroves trees grow in …… water.
4-Chameleons use their …… to see the food, while foxes use their …… to hear noise of predators.
5-Long sticky …… helps panther chameleon to hunt insects.

---

(3) (Esophagus – teeth – acacia – respiratory – water – behavioral – fat)

1-Producing a poison by …… tree to make a bad tasty leaves belongs to …… adaptation.
2-The trunk in acacia tree stores …… as the hump in camel stores ……
3-…… is a tube with muscles that help push food into the stomach.
4-The two lungs are one of the important organs in the …… system.
5-Crushing the food in your mouth is the function of ……

(4) (nervous – sounds – structural – taste – echolocation – hair)

1-Sight and …… are the senses to distinguish between milk and water.

2-The common thing between bats and dolphins is the use of …… property through their sense of hearing.

3-The brain is part of your …… system.

4-The presence of …… on jerboa's feet and toes help it catch sand, and this considered as …… adaptation.

5-The Egyptian mongoose makes …… to send messages to other mongoose.

---

(5) (sight – transparent – eye – rough – light)

1-The organ responsible for the sense of sight is the ……

2-Both humans and animals need a source of …… to see.

3-Light is reflected off the …… surface in different directions.

4-Lenses and glasses are considered …… materials.

5-When watching a football game you use your senses of hearing and ……

---

(6) (moon – night vision goggles – Light – Owl – sun)

1-The main source of light energy on the earth is the ……

2-…… can rotate its head in all directions.

3-The …… is not a source of light.

4-…… energy affects sensory receptors in the eye, causing a vision.

5-Humans use the …… to see in the dark.

---

(7) (high pitched – smelly – sound – sight – echo – code)

1-The different languages are considered as ……

2-Dolphins and humpback whales are sea animals that use …… energy in their communication.

3-Fireflies beetles use the sense of …… to communicate.

4-The blind person's cane and bats emit …… sound that bounces off in the form of ……

5-Both of acacia tree and ants use …… messages to communicate.

Complete the following sentences:

1-(Forest - Polar) bears blend in with snow through their white fur.
2-Butterflies that have a color like the color of the tree they live on are called this phenomenon (migration – camouflage).
3-One of the adaptations that help the animal protect itself from enemies is (blend in – extinction).
4-Arctic fox has (white – brown) fur in winter, while it has (white – brown) fur in summer.
5-Camouflage in panther chameleon takes place through its brightly colorful (scales – fur).
7-Eyes of chameleon move independently of each other, this is considered as (structural – behavioral) adaptation.
8-Most of sharks can live in (salt - fresh) water only, but bull sharks lives in both water.
9-(Giraffe – deer) is the only animal that may eat acacia leaves.
10- Wide leaves that float above the surface of the water are considered as adaptations of (desert – wetland) plants to get large amount of (sunlight – water).
11- Adaptation to store water is an important trait for plants that live in (wetland – desert) environment.
12- Kapok tree has fluffy (brown – yellow) seeds.
13- (Taproot – Buttress root) is a very long root grows downward to search for water.
14- Leaves of palm tree are tiny like leaves of (pine – acacia) tree.
15-(Taproot – Buttress root) is a large wide root grows up to firmly hold the tree.
16-One of the structural adaptation of water lily plant is that it has (tiny – wide) leaves.
17-The mouth breaks up food mechanically by chewing in which (Teeth only - Teeth and tongue) mix and grind food.

18- The system that digests food to produce energy is (digestive – respiratory) system.
19- Food passes from mouth to stomach through a narrow tube known as (small intestine – esophagus).
20- The diaphragm rises up during the (Inhalation - Exhalation) process.
21- Humans have (lungs- gills) and take in oxygen gas from (air – water).
22- Fish breathe (Oxygen - carbon dioxide) gas which dissolved in water by (lungs- gills).
23- (Breathing - pollution) causes many problems for the lungs.
24- Amphibians are (endangered – extinct) species.
25- (Amphibians – Fish) have two different ways for breathing.
26- You can identify food which is not good through the sense of (hearing – taste).
27- Bats use (light – sound) as a means of communication with each other.
28- The (brain – stomach) is the command center of your body that sends messages to different parts of body for reacting to danger quickly.
29- The nervous system is connected by (nerves – veins) that transmit messages around the body.
30- The skin is an important organ of the (respiratory - nervous) system.
31- Your sensation of hot weather depends on the sensory receptors in the (skin – nose).
32- (Bats – Owls) have the ability to turn the head in all directions.
33- (Veins – Nerves) carries the message from your eyes to your brain when you see something.
34- The sensory receptors convert sensory information to (nerve signals – waves) for sending it to the brain.
35- Jerboa jumps in (straight – zigzag) paths to run quickly from danger.
36- Hopping of the jerboa in zigzag pattern to run away from danger is considered as a (structural – behavioral) adaptation.
37- The long hind legs of jerboa are considered as a (structural – behavioral) adaptation.

38- Closing our eyes quickly when a flash light falls on them suddenly represent (reflex action – camouflage)
39- The time taken for the body to receive information from the environment (reflex action - response time)
40- If an animal eyes glow at night, this means its eyes must contain (lens – mirror like membrane) on the back of their eyes.
41- I saw an eye shining in the dark, this animal could be (bat – cat)
42- Nocturnal animals that are adapted to see at night have (larger – smaller) eyes than the human eyes.
43- Paper and a piece of cloth are considered (smooth – rough) surfaces.
44- (Shiny smooth – Dark rough) materials regularly reflect light better.
45- When light is obscured by an opaque object (echo - Shadow) is formed.
46- (Reflection – Refraction) of light from objects is what lets the (brain – nerves) process and perceiving what our eyes see.
47- Changing the pattern of lighting up in fireflies beetles is an example of (structural – behavioral) adaptation.
48- Reading and writing are common types of communication in (animal – human) world
49- The humpback whales sing a wide range of tones and a series of songs for (hide from enemies – communication).
50- Humpback whales can use (sound – light) energy to communicate.
51- Traffic lights depend on the sense of (hearing – sight) in communication.
52- From the organs that we can use to send or receive the code (heart – eyes).
53- The songs of Humpback whales have (high – low) pitched sounds in summer which is (mating – feeding) season.
54- The (scout ant – nurse ant) is the ant responsible for searching for food.

Choose the correct answer:

1-How do adaptations affect the survival rate of a species?

a)Adaptations increase the survival rate of a species.

b) Adaptations decrease the survival rate of a species.

c)Adaptations change all the organism's structures.

d) Adaptations change all the organism's behaviors

2-Adaptations include changes that …….. in the environment.

a) reduce chances of survival b) improve species survival

c) reduce life span for individuals d) reduce reproduction process

3-Which would die if it didn't have the right adaptations for survivals in its environment?

a)a rock b) a car c) a tree d) air

4-What happens to organisms that don't have the right adaptations for the conditions in their environment?

a) the population increase b) the organisms die off

c) the population stays the same d) no changes occur

5-If the number of an animal species becomes zero, this mean that this species……..

a) becomes endangered b) becomes extinct

c) will survive d) going to be extinct

6-..... is the covering body of arctic fox.

a) heavy hair b) heavy skin c) thick fur d) thick feathers

7-Fennec fox has ……. to get rid of excess heat.

a) short ears b) long ears c) long tail d) tongue

8-An animal that has the ability to hide in the desert……..

a) caracal b) fennec fox c) lizard d) all of them

9-Fennec fox and caracal have ……. that help them blend in with desert landscape.

a) colorful scales b) sandy colored feathers

c) sandy colored fur d) thick white fur.

10- When panther chameleon stands within leaves of trees, the colors of its scales changes into …… color.

a) white b) green c) blue d) black

11- The different colors of fur in different types of bears help them to……..

a) respire in their environment. b) adapt their habitat.

c) communicate with other animals. d) look for shade area.

12- Animals that live in a hot environment have ……. ears to allow heat to escape for cooling.

a) short b) long c) small d) sharp

13- The color of fur of arctic foxes changed according to season, this is considered as……..

a)Change of the way of breathing. b) Structural adaptation.

c) Behavioral adaptation. d) Change of the way of feeding.

14- The starred agama lizard keeps cool during a hot sunny day in desert by

a) eating green vegetables b) drinking more water

c) secreting more sweat d) finding a shade area

15- Water lily has wide leaves to absorb a large amount of…….

a) Water b) sunlight c) nutrients d) fats

16- Desert plants are characterized by all the followings except that they…….

a) store water b) have wide leaves

c)have long roots d) have sharp spines

17- If a plant grows in a snowy habitat, so it needs all the following characteristics except ……. to adapt.

a) short branches b) triangular shapes c) wide leaves d) needle leaves

18- If a plant grows in a rainforest, so it needs ……..…. to adapt for getting more sunlight.

a) small roots b) very tall trunk

c) sharp spines d) all previous answers

19- The two trees that can send smelly messages through the wind are……..

a)Kapok and water lily trees. b) Acacia and palm trees.

d) Acacia and kapok trees. d) Mangrove and pine trees.

20- All of the following properties protect acacia leaves from being eaten by animals except that……..

a) they are high enough **b)they are brightly colored**

c)they are guarded by sharp spines **d) they produce poison**

21- The needed energy to perform different functions of a living organism is obtained from……..

a)Breathing only. **b) Food processing only.**

c) Breathing and running. **d) Food processing and breathing.**

22- In the mouth teeth and tongue break down the food with the help of……..

a) Saliva **b) Pancreatic juices** **c) Liver juices** **c) Stomach acids**

23- Stomach is a part of the digestive system that……

a) chewing food

b) converts solid food into soupy liquid

c) absorbs nutrients from food.

d) delivers food into the esophagus.

24- All the following are similarities between human and fish respiratory system except…….

a)Both breathe in oxygen. **b) Both have lungs.**

c) Both breathe out carbon dioxide.

d) In both blood vessels carry oxygen to the body.

25- Fish extracts oxygen out of the water by……..

a) skin **b) gills** **c) lungs** **d) fins**

26- From the negative effects of human activities on the human health are…..

a) lung damage and asthma **b) heart problems and wounds**

c) lung damage and wounds **d) asthma and wounds**

27- To know if a cup of water is hot or cold we need to use the sense of……..

a) taste **b) hearing** **c) touch** **d) smell**

28- The sharpest sense that dolphins have is the sense of…….

a) taste **b) hearing** **c) touch** **d) smell**

29- To detect the place of a table in a completely dark room you need to use the sense of……..

a) taste **b) hearing** **c) touch** **d) smell**

30- Bat is ……. animal.

a) nocturnal b) morning c) harmful d) wingless

31- Owls have all the following properties to sense distant preys except……..

a) large eyes b) bowl-shaped face

c) head rotates in all directions d) weak sense of hearing

32- All of the following are components of the nervous system except……..

a) spinal cord b) lungs c) brain d) nerves

33- Imagine that you touch a cube of ice with your finger. Where this message is processed and translated?

a) Finger b) Hand c) Brain d) Nerve

34- Which of the following is a source of light?

a) The moon b) The eyes c) Fire d) Mirror

35- When light falls on a dark surface……..

a) the surface absorbs the light. b) the light is refracted.

c) light passes through it. d) nothing happens.

36- All the following have structural adaptation in their sense of sight so it is strong except…….

a) Owl b) Fishing cat c) Bat d) Panther chameleon

37- There is a mirror-like membrane in all of the following except……..

a) the horse b) the cat c) the human d) the deer

38- Night vision goggles look like …….. that present in nocturnal animals.

a) Pupils b) Nerves c) mirror-like membrane d) Blood vessels

39- Which of the following allows the light pass through it?

a) moon b) wood c) glass window d) plastic

40- Painted (opaque) surface…….. the incoming light rays.

a) Absorbs only b) Reflects only

c) Allows to pass d) Absorbs and reflects

41- Raise the thumb up or lower it down a kind of …….

a) colors b) codes c) lights d) waves

42- All the following are forms of codes, except……

a) Faces expressions b) Writing

c) Colors of traffic light d) swimming

43-To communicate through the sense of sight we need……

a) hearing music b) making sound

c) moving d) availability of light

44-You could determine how high music sound by……..

a) sound style b) sound frequency c) pitch of sound d) sound type

45-…….. Can communicate by displaying light.

a)All animals b) All plants

c) All plants and animals d) Humans and some animals

46-Animals can communicate with each other through…….

a) sounds and lights b) talking c) reading d) writing

47-Humans can communicate using all the following except……..

a) sound b) light c) movements d) flying

48-Which of the following communications uses the sense of sight only?

a)Watching TV. b) Flashing light of fireflies.

c) Echolocation in dolphins. d) Using the cell phone.

49-Which of the following communications uses the sense of hearing only?

a) Rescue flare. b) Flashing light of fireflies.

c) Echolocation in bats. d) Using the cell phone.

Write the scientific term:

1-A habitat in which living organisms live. (…….)

2-Is a change over generations that help organisms to survive and reproduce. (…….)

3-Change in the structure of the animal's body. (…….)

4-Change in the behaviors of a group of animals. (…….)

5-Death of living organisms because they can't adapt to the conditions of its environment. (…….)

6-The animal that has an insulating layer of fat and thick downy feathers. (…….)

7-A type of adaptation that helps an animal to hide. (…….)

8-The animal that panting to lower its body temperature. (…….)

9-A feature in bull shark, in which the upper surface of its body is darker than its lower surface. (…….)

10-A tree produces a poison to make the leaves taste very bad to defend itself. (…….)

11-Liquid that moistens food in mouth to facilitate swallowing.(…….)

12-The organ in which food is broken down into soupy liquid. (…….)

13-The organ that absorbs the food nutrients to move into the blood. (…….)

14-The organ that absorbs water from undigested food. (…….)

15-The organ through which solid wastes of digestion leave the body.(…..…)

16-A gas presents in air and water and is very important for breathing process. (…….)

17-The property that depend on the sense of hearing through which dolphins locate their preys under water. (…….)

18-Animals that becomes active at night. (…….)

19-The property related to the bouncing of sound waves back when the sound waves hit objects. (…….)

20-A flying mammal that use echolocation to locate its prey. (…….)

21-The main control center of the body. (…….)

22-Part of the nervous system passes through the backbone, and carries messages from body to brain and vice versa. (…….)

23-Small branches from the spinal cord that distributed throughout all parts of the body. (…….)

24-A desert rodent with a small body, very large ears and small eyes. (…….)

25-An animal that can escape from enemies because of the length of its hind leg. (…….)

26-The time taken by jerboa to react to danger. (…….)

27-Messages that are so fast that you can't realize it. (…….)

28-A membrane on the back of eyes of some nocturnal animals that helps them have excellent night vision. (…….)

29-The visible form of energy. (…….)

30-Anything that gives off its own light. (…….)
31-Objects that allow light to pass through. (…….)
32-Objects that don't form shadows. (…….)
33-Objects that don't allow light to pass through. (…….)
34-Objects that form shadows. (…….)
35-Information that is transformed into another representative form. (…….)
36-Small winged beetles that use their wings to flash. (…….)
37-A pattern that has a meaning. (…….)
38-Ants sending smelly message when there is a shortage of food. (…….)
39-A simple tool used by blind people to walk safely. (…….)

Put (√) or (X) then correct the wrong:

1-Penguins have special blood vessels in their feet that help them survive in polar region. ( )
2-Penguins have no feathers on their feet. ( )
3-The feet of the penguin freeze in cold winter. ( )
4-The white fur of the arctic fox helps it to blend in with snow. ( )
5-The bodies of fennec foxes, penguins, and caracals are adapted to live in extreme hot climate. ( )
6-The fur that some animals possess to protect them from the cold is a behavioral adaptation. ( )
7-Bull sharks have less competition for finding food in fresh water. ( )
8-Frogs are reptiles while panther chameleon is amphibians. ( )
9-Animals can't eat Barbary fig due to its sharp spines. ( )
10-Pine trees live in desert habitat and have needle leaves. ( )
11-Mangrove tree adapt to resist water waves by having long strong leaves. ( )
12-Kapok tree has hand shaped leaves. ( )
13-Acacia tree grow in Amazon forest. ( )
14-Plants need long roots that extend deep into the soil to survive in the water scarce. ( )

15- Plants have two types of adaptation structural and behavioral. ( )
16- All living organisms need food and oxygen gas to get energy. ( )
17- Food turns from complex to simple during digestion. ( )
18- Esophagus does not absorb food. ( )
19- No digestion takes place in the large intestine. ( )
20- Exhaled air is loaded with oxygen. ( )
21- The respiratory system is responsible for the entry of air into the body. ( )
22- Both salamander and fish can breathe through lungs. ( )
23- Man cannot restore the ecosystem with any way. ( )
24- The nervous system works separately from the five senses. ( )
25- Seeing with our eyes is a way to help us gather information about the environment around us. ( )
26- The ear is the sense organ responsible for seeing objects. ( )
27- Every part of the nervous system can work individually. ( )
28- Foxes have a strong sense of hearing and sight. ( )
29- The skin is the sensory organ that makes you feel the smooth of the cloth. ( )
30- Dolphins have a sharp sense of hearing and sight. ( )
31- The brain sends automatic signal so that we can breathe. ( )
32- Bats can see well in the dark. ( )
33- Your sensation of thunder and lightning depends on your senses of hearing and sight. ( )
34- The time taken by jerboa to react to danger is less than one second. ( )
35- The body can respond to more than one external stimulus at the same time. ( )
36- In a completely dark room, some light entering the eyes. ( )
37- Eyes of nocturnal animals are adapted to see in the total darkness. ( )
38- Some animals can see at night, such as a wild cat. ( )
39- You can see a green ball inside a transparent glass box. ( )
40- Wood is a transparent object that allows light to pass through it. ( )
41- Fishing cat can detect very faint light levels. ( )

42- The Egyptian mongoose makes a group of sounds to communicate with other mongoose. ( )
43- Echolocation is a type of communication between owls. ( )
44- In order for the code to be translated, the brain must identify it. ( )
45- Red and green traffic lights are codes. ( )
46- Fireflies are wingless beetles. ( )
47- It is possible for human to interact with fireflies. ( )
48- Animals can use more than one sense to communicate with each other. ( )

Correct the underlined words:

1-Short ears of arctic fox belong to behavioral adaptation.
2-Panting in dogs and fennec fox belongs to structural adaptation.
3-Caracals have colorful scales to adapt their desert landscape.
4-Camouflage in fennec foxes takes place through their white colored fur.
5-Thick fur helps polar bear to stay cool in cold environment.
6-White fur helps bears to blend in with the trees while hunting.
7-Fishing cat is similar to fennec fox in having sandy-colored fur.
8-Bull sharks have less competition for finding food in salt water.
9-Both of panther chameleon and kapok tree survive in polar habitat.
10- Both of fennec fox and palm tree survive in hot forest habitat.
11-In bull shark the lower surface of its body is darker than its upper surface.
12-Lizards are from mammals that are ancient type of animals.
13- The body of some types of lizard is covered with colored fur to blend in with colored rocks.
14- Kapok tree sends delicious messages to attract owls.
15- Adaptation to store water is an important character for plants that live in rainforest habitat.
16- When running and making an effort, the number of breathing times decreases.
17-The wall of small intestine has tiny nerves to absorb the nutrients.

18- Pancreas and liver secrete juices that flow into large intestine to break down food into nutrients.
19- Amphibians live in dry environment.
20- When you determine a sweet or bitter taste, you have used your eyes.
21- Bats use their sense of smell to hunt and avoid obstacles.
22- The Egyptian jerboa is one of desert reptiles.
23- Humans use their digestive system to sense and process information.
24- The brain responds to information sent by the sense of sight slower than information sent by the sense of hearing.
25- Nerves of nose and heart are connected directly to the brain.
26- Wood and carton are considered transparent materials.
27- Light travels in zigzag lines in the form of light waves.
28- Things can't be seen through transparent objects.
29- Scout ants sending smelly message if there is a danger nearby to protect the colony.

Compare between inhalation and exhalation using these words:

(Carbon dioxide-downward-Relax-Increase-Contract-Oxygen-upward)

Point of comparison	Inhalation	Exhalation
Diaphragm movement	……., and move …….	……. , and move …….
Size of chest cavity	……..	……..
The air rich in	……. gas.	……. gas.

Choose from column (B) what suits it in column (A):

1)

Column (A)	Column (B)
1- A common organ in the digestive and respiratory system.	a) Carbon dioxide
2- The process of pushing air in and out of the body.	b) Respiration
3- Branches inside the lung that resemble tree branches	c) Pharynx (throat)
4- A gas produced by respiration.	d) Diaphragm
5- A muscle that has an important role in the breathing process.	e) Bronchioles

1	2	3	4	5
…….	…….	…….	…….	…….

2)

Column (A)	Column (B)
1-Owl	a) Eyes glow to see at night.
2-Fishing cat	b) Use echo to locate preys under water.
3-Dolphin	c) The prey of the snake and hops to escape in zigzag path.
4-Bat	d) The face shape collects and amplify different sounds.
5-Jerboa	e) Sleep upside down and depend on echo of the sound to locate preys.

1	2	3	4	5
…….	…….	…….	…….	…….

3)

Column (A)	Column (B)
1-The visible form of energy that is transmitted in the form of waves.	a) mirror- like membrane
2-A structural adaptation in the eye that provides some animals with better vision at night.	b) Light
3-When an object falls from your hands.	c) Smell
4-When a foreign object is brought into your eyes	d) Using the sense of sight
5-Ants use it to sense and communicate	e) The reflex action occurs.

1	2	3	4	5
……..	……..	……..	……..	……..

4)

Column (A)	Column (B)
1-A way to communicate between some animals like Fireflies beetles.	a) Brain
2-Carry messages to the brain via the spinal cord.	b) Spinal cord
3-It is similar in its processing of information to a computer.	c) Nerves
4-Animals live in water and communicate by songs.	d) Flash light
5-Responsible for the transmission of commands through nerves to the muscles to contract.	e) Humpback whales

1	2	3	4	5
……..	……..	……..	……..	……..

Give reason for the

1-Adaptation is an important trait of living organisms.

- ……..

2-Some animals have the ability to make camouflage adaptation.

- ……..

3- The penguin has an insulating layer of fat and thick downy feathers.

- ……..

4- The polar bears (or arctic foxes) have thick fur.

- ……..

5-Forest bears have dark or brown fur.

- ……..

6-Polar bears (or arctic foxes) have white fur.

- ……..

7-Arctic fox has short ears and legs.

- ……..

8-Fennec fox has extra-large ears. (Fennec fox pants like dogs)

- ……..

9-Panther chameleon is covered with colored scales.

- ……..

10- Chameleons can move each of their eyes in a different direction.

- ……..

11- Panther chameleon has V-shaped feet and tail like a hand.

- ……..

12- Bull shark has sharp teeth.

- ……..

13- Bull sharks have less competition for finding food in fresh water.

- ……..

14- Desert lizard looks for shade during hot sunny days.

- ……..

15- The leaves of plants that float above the water surface are so wide.

➢ ……...

16- The shape of pine tree leaves is like a needle.

➢ ……...

17- Barbary fig has sharp spines.

➢ ……...

18- Kapok tree has large wide roots that grow up on its trunk.

➢ ……...

19- Kapok tree has hand-shaped leaves.

➢ ……...

20- Pine tree has a triangular shape and short branches.

➢ ……...

21- Saliva is very important in your mouth.

➢ ……...

22- The small intestine has tiny blood vessels.

➢ ……...

23- The inhaled air is different from the exhaled air.

➢ ……...

24- Gills are unique structural adaptation in fish.

➢ ……...

25- Amphibians are endangered species.

➢ ……...

26- Dogs are used in guarding.

➢ ……...

27- Dolphin can hear all kind of sounds.

➢ ……...

28- A dolphin can locate living organisms and things under the surface of the water.

➢ ……...

29- Bats cannot see in the dark, but they hunt their prey at night.

➢ ……...

30- Owls can hunt during night.

➢ ……...

31- The jumping jerboa can jump for long distances.

➢ ……...

32- Feet and toes of jerboa have hairs.

➢ ……...

33- Some animals have a structural adaptation in their eyes.

➢ ……...

34- Some animals like cats have the ability to see in the dark.

➢ ……...

35- Moon is not a source of light.

➢ ……...

36- You can see an object placed behind a glass cup.

➢ ……...

37- Mirror reflects light better than painted surface.

➢ ……...

38- You can't see an object placed behind a wood door.

➢ ……...

39- Fireflies produce a chemical reaction inside their bodies.

➢ ……...

40- Fireflies use flashing light to communicate.

➢ ……...

41- Humpback whales sing different songs.

➢ ……...

42- The songs of Humpback whales have high pitched sounds in winter.

➢ ……...

43- The hearing sense is very important for bats.

➢ ……...

What happens if……?

1- Animals can't adapt their environment.

➢ ……...

2- The polar bears have thin fur instead of thick fur.

➢ ……...

3- Forest bears are coated with white fur.

➢ ……...

4- Arctic fox has brown fur in winter, while it has white fur in summer.

➢ ……...

5- A plant is taken from its original habitat and placed in another different environment.

➢ ……...

6- The small intestine is removed from the human body.

➢ ……...

7- Diaphragm moves downward during inhalation.

➢ ……...

8- Diaphragm moves upward during exhalation.

➢ ……...

9- Owl can't rotate its head in all direction.

➢ ……...

10- The structure of fishing cat's eyes is the same like human.

➢ ……...

11- Light falls on smooth and shiny surface.

➢ ……...

12- Light falls on rough surface.

➢ ……...

13- A firefly wants to attract mates.

➢ ……...

14- The amount of food in ants colony decreases.

➢ ……...

Answer the following questions:

1- Jerboa has long and strong hind legs that help him to jump quickly and escape when danger. Determine the type of adaptation.

Solution: ……………………………………………………………….

………………………………………………………………………...

****

2- The husky dogs live in a cold environment, while another type of dogs live in a hot environment. In your opinion, which one has thick fur? And why?

Solution:

- The ……………….. dogs that live in a ………………… environment.
- The thick fur keeps their body …………………..

****

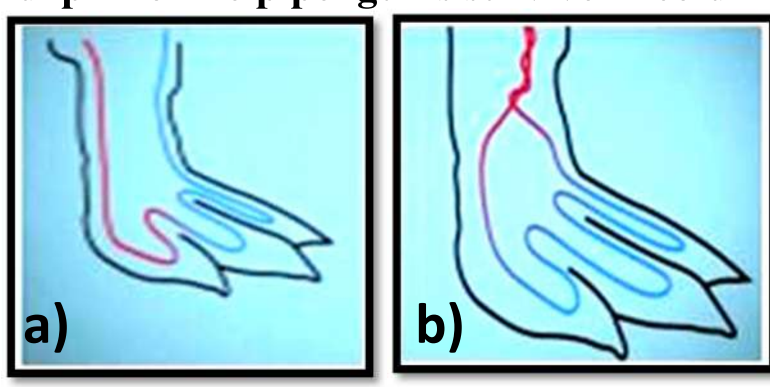
3- Which figure shows the correct structure of blood vessels in the feet of penguins? Explain how do this adaptation help penguins survive in cold climate ?

Figure ………………..

Because ………………..

…………………………

…………………………



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4-Panther chameleon puffs up its body with air for defense. What is the type of adaptation?

……………………………..

****

5-Mohamed drives his bike and while that he hears a car behind him, he turns away so as not to hit it. Which system inside the body received a signal made Mohamed realize that?

……………….…………………..………………..

6-Adam hurt his toe when he climbed. How did he know that he had hurt his toe?

a) The nerves in his hurt toe sent a signal through his body to the brain.

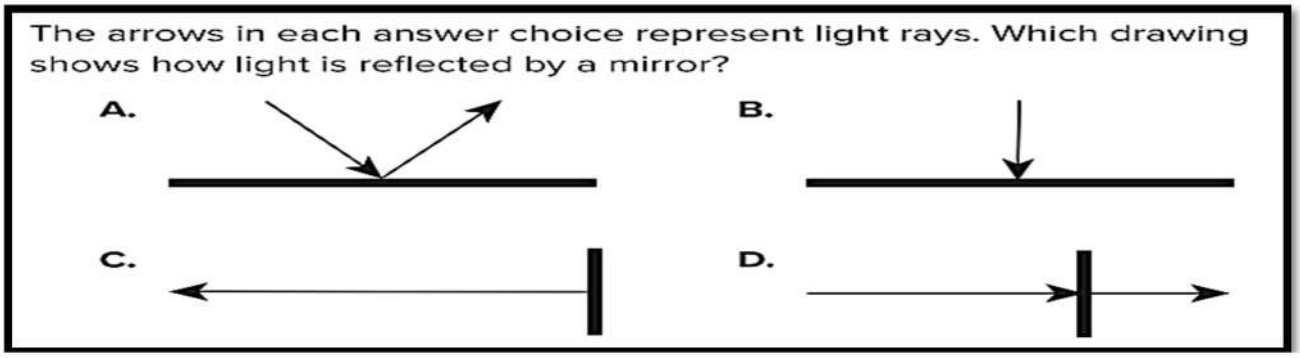
b) The blood in his hurt toe sent a signal through his body to the brain.

c) Adam toes became very cold.

d) Adam toes became smaller.

****

7- choose the correct figure:



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8- To see what was inside a box without having to open the box. What material should be used? (wood – mirror – transparent plastic – carton)

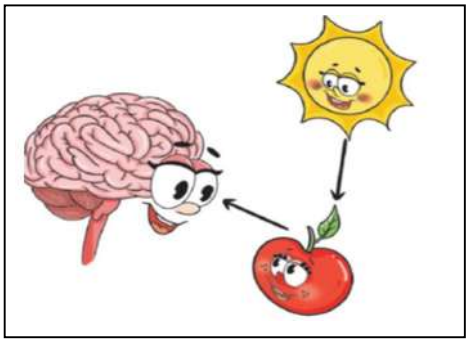
****

9- To prevent the light from entering your room, suggest some materials that you can use to cover the window.

Solution: ……..……..……..

****

10- look to the figure then complete:

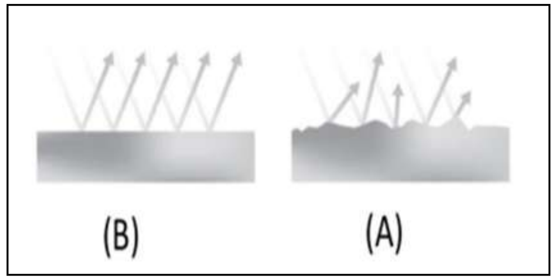


The light falls on the …… then it is reflected on the eyes , so the eyes transmit the message to …… then he interprets it and translates it, so we see the apple.

11- look to the figure then complete:

the surface represents the reflection of light rays from a wooden spoon is ……………

Because it is a …………… surface.



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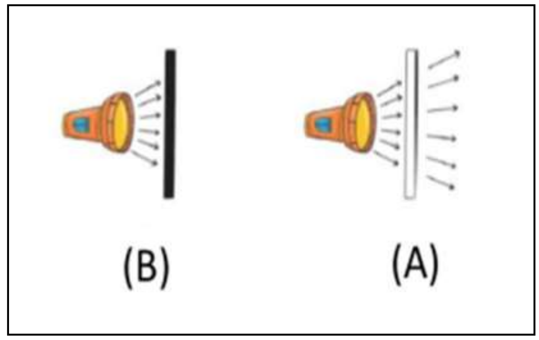
12- look to the figure then complete:

Object (A) is (transparent – opaque).

Object (B) is (transparent – opaque).



****

13-look to the figure then complete:

the figure represents a transparent object is …………………………

the figure represents an opaque object is …………………………

****

14- Who I am: a body that appears light at night, but isn't considered as a source of light?

…………………………………………

****

15- What is a common mean of communication between some animals and human?

➢ **………………………………………………………………………**

Cross out the odd word:

1- Penguin – polar bear – arctic fox – fennec fox.

2- Cactus plant – palm tree – Barbary fig – pine tree.

3- Acacia tree – polar bear – pine tree – penguin.

4- Mouth – lungs – stomach – small intestine.

5- Nose – trachea – anus – air sacs – lungs.

6- Toads – panther chameleon – frogs – salamanders.

7- Panther chameleon – starred agama lizard – bull shark – arctic fox.

8- Smell – taste – eye – hearing.

9- Eye – Nose – taste – skin.

10- Brain – spinal cord – nerves – stomach.

11- Sun – moon – flashlight – fire.

12- Moon – mirror – eye – candle.

13- Fishing cat – owl – dolphins – tarsier.

14- Wood – paper – metals – air.

15- Wood – glass – air – water.

16- Bats – fireflies – dolphins – blind person's cane.

Best wishes
Dr/ Zeinab Salah

Final Revision for first term

Complete the following sentences using the following words:

(1) (spines – cool – hot – warm blood – darker – structural – cold blood – polar)

1-In penguins, blood vessels bring cold blood upward from the feet, but bring warm blood downward to the feet.
2-Starred agama lizards live in extreme hot weather.
3- Both of arctic fox and pine tree survive in polar habitat.
4-The Barbary fig plant has spines that protect it from being eaten by desert animals, and this is considered as structural adaptation.
5-Animals that live in forests have fur darker than that of polar animals.
6-A burrow is an excellent place for fennec fox to stay cool during day.

---

(2) (eyes – tongue – salt – structural – ears – behavioral)

1-The fat layer under the animal's skin to warm it is structural adaptation.
2-Some animals migrate at certain times of the year. This type of adaptation is called behavioral adaptation.
3-Mangroves trees grow in salt water.
4-Chameleons use their eyes to see the food, while foxes use their ears to hear noise of predators.
5-Long sticky tongue helps panther chameleon to hunt insects.

---

(3) (Esophagus – teeth – acacia – respiratory – water – behavioral – fat)

1-Producing a poison by acacia tree to make a bad tasty leaves belongs to behavioral adaptation.
2-The trunk in acacia tree stores water as the hump in camel stores fat.
3-Esophagus is a tube with muscles that help push food into the stomach.
4-The two lungs are one of the important organs in the respiratory system.
5-Crushing the food in your mouth is the function of teeth.

(4) (nervous – sounds – structural – taste – echolocation – hair)

1-Sight and taste are the senses to distinguish between milk and water.

2-The common thing between bats and dolphins is the use of echolocation property through their sense of hearing.

3-The brain is part of your nervous system.

4-The presence of hair on jerboa's feet and toes help it catch sand, and this considered as structural adaptation.

5-The Egyptian mongoose makes sounds to send messages to other mongoose.

---

(5) (sight – transparent – eye – rough – light)

1-The organ responsible for the sense of sight is the eye.

2-Both humans and animals need a source of light to see.

3-Light is reflected off the rough surface in different directions.

4-Lenses and glasses are considered transparent materials.

5-When watching a football game you use your senses of hearing and sight.

---

(6) (moon – night vision goggles – Light – Owl – sun)

1-The main source of light energy on the earth is the sun.

2-Owl can rotate its head in all directions.

3-The moon is not a source of light.

4-Light energy affects sensory receptors in the eye, causing a vision.

5-Humans use the night vision goggles to see in the dark.

---

(7) (high pitched – smelly – sound – sight – echo – code)

1-The different languages are considered as code.

2-Dolphins and humpback whales are sea animals that use sound energy in their communication.

3-Fireflies beetles use the sense of sight to communicate.

4-The blind person's cane and bats emit high pitched sound that bounces off in the form of echo.

5-Both of acacia tree and ants use smelly messages to communicate.

Complete the following sentences:

1-(Forest - Polar) bears blend in with snow through their white fur.
2-Butterflies that have a color like the color of the tree they live on are called this phenomenon (migration – camouflage).
3-One of the adaptations that help the animal protect itself from enemies is (blend in – extinction).
4-Arctic fox has (white – brown) fur in winter, while it has (white – brown) fur in summer.
5-Camouflage in panther chameleon takes place through its brightly colorful (scales – fur).
7-Eyes of chameleon move independently of each other, this is considered as (structural – behavioral) adaptation.
8-Most of sharks can live in (salt - fresh) water only, but bull sharks lives in both water.
9-(Giraffe – deer) is the only animal that may eat acacia leaves.
10- Wide leaves that float above the surface of the water are considered as adaptations of (desert – wetland) plants to get large amount of (sunlight – water).
11- Adaptation to store water is an important trait for plants that live in (wetland – desert) environment.
12- Kapok tree has fluffy (brown – yellow) seeds.
13- (Taproot – Buttress root) is a very long root grows downward to search for water.
14- Leaves of palm tree are tiny like leaves of (pine – acacia) tree.
15-(Taproot – Buttress root) is a large wide root grows up to firmly hold the tree.
16-One of the structural adaptation of water lily plant is that it has (tiny – wide) leaves.
17-The mouth breaks up food mechanically by chewing in which (Teeth only - Teeth and tongue) mix and grind food.

18- The system that digests food to produce energy is (digestive – respiratory) system.
19- Food passes from mouth to stomach through a narrow tube known as (small intestine – esophagus).
20- The diaphragm rises up during the (Inhalation - Exhalation) process.
21- Humans have (lungs- gills) and take in oxygen gas from (air – water).
22- Fish breathe (Oxygen - carbon dioxide) gas which dissolved in water by (lungs- gills).
23- (Breathing - pollution) causes many problems for the lungs.
24- Amphibians are (endangered – extinct) species.
25- (Amphibians – Fish) have two different ways for breathing.
26- You can identify food which is not good through the sense of (hearing – taste).
27- Bats use (light – sound) as a means of communication with each other.
28- The (brain – stomach) is the command center of your body that sends messages to different parts of body for reacting to danger quickly.
29- The nervous system is connected by (nerves – veins) that transmit messages around the body.
30- The skin is an important organ of the (respiratory - nervous) system.
31- Your sensation of hot weather depends on the sensory receptors in the (skin – nose).
32- (Bats – Owls) have the ability to turn the head in all directions.
33- (Veins – Nerves) carries the message from your eyes to your brain when you see something.
34- The sensory receptors convert sensory information to (nerve signals – waves) for sending it to the brain.
35- Jerboa jumps in (straight – zigzag) paths to run quickly from danger.
36- Hopping of the jerboa in zigzag pattern to run away from danger is considered as a (structural – behavioral) adaptation.
37- The long hind legs of jerboa are considered as a (structural – behavioral) adaptation.

38- Closing our eyes quickly when a flash light falls on them suddenly represent (reflex action – camouflage)

39- The time taken for the body to receive information from the environment (reflex action - response time)

40- If an animal eyes glow at night, this means its eyes must contain (lens – mirror like membrane) on the back of their eyes.

41- I saw an eye shining in the dark, this animal could be (bat – cat)

42- Nocturnal animals that are adapted to see at night have (larger – smaller) eyes than the human eyes.

43- Paper and a piece of cloth are considered (smooth – rough) surfaces.

44- (Shiny smooth – Dark rough) materials regularly reflect light better.

45- When light is obscured by an opaque object (echo - Shadow) is formed.

46- (Reflection – Refraction) of light from objects is what lets the (brain – nerves) process and perceiving what our eyes see.

47- Changing the pattern of lighting up in fireflies beetles is an example of (structural – behavioral) adaptation.

48- Reading and writing are common types of communication in (animal – human) world

49- The humpback whales sing a wide range of tones and a series of songs for (hide from enemies – communication).

50- Humpback whales can use (sound – light) energy to communicate.

51- Traffic lights depend on the sense of (hearing – sight) in communication.

52- From the organs that we can use to send or receive the code (heart – eyes).

53- The songs of Humpback whales have (high – low) pitched sounds in summer which is (mating – feeding) season.

54- The (scout ant – nurse ant) is the ant responsible for searching for food.

Choose the correct answer:

1-How do adaptations affect the survival rate of a species?

a)Adaptations increase the survival rate of a species.

b) Adaptations decrease the survival rate of a species.

c)Adaptations change all the organism's structures.

d) Adaptations change all the organism's behaviors

2-Adaptations include changes that …….. in the environment.

a) reduce chances of survival b) improve species survival

c) reduce life span for individuals d) reduce reproduction process

3-Which would die if it didn't have the right adaptations for survivals in its environment?

a)a rock b) a car c) a tree d) air

4-What happens to organisms that don't have the right adaptations for the conditions in their environment?

a) the population increase b) the organisms die off

c) the population stays the same d) no changes occur

5-If the number of an animal species becomes zero, this mean that this species……..

a) becomes endangered b) becomes extinct

c) will survive d) going to be extinct

6-..... is the covering body of arctic fox.

a) heavy hair b) heavy skin c) thick fur d) thick feathers

7-Fennec fox has ……. to get rid of excess heat.

a) short ears b) long ears c) long tail d) tongue

8-An animal that has the ability to hide in the desert……..

a) caracal b) fennec fox c) lizard d) all of them

9-Fennec fox and caracal have ……. that help them blend in with desert landscape.

a) colorful scales b) sandy colored feathers

c) sandy colored fur d) thick white fur.

10- When panther chameleon stands within leaves of trees, the colors of its scales changes into …… color.

a) white b) green c) blue d) black

11- The different colors of fur in different types of bears help them to……..

a) respire in their environment. b) adapt their habitat.

c) communicate with other animals. d) look for shade area.

12- Animals that live in a hot environment have …… ears to allow heat to escape for cooling.

a) short b) long c) small d) sharp

13- The color of fur of arctic foxes changed according to season, this is considered as……..

a)Change of the way of breathing. b) Structural adaptation.

c) Behavioral adaptation. d) Change of the way of feeding.

14- The starred agama lizard keeps cool during a hot sunny day in desert by

a) eating green vegetables b) drinking more water

c) secreting more sweat d) finding a shade area

15- Water lily has wide leaves to absorb a large amount of…….

a) Water b) sunlight c) nutrients d) fats

16- Desert plants are characterized by all the followings except that they…….

a) store water b) have wide leaves

c)have long roots d) have sharp spines

17- If a plant grows in a snowy habitat, so it needs all the following characteristics except …… to adapt.

a) short branches b) triangular shapes c) wide leaves d) needle leaves

18- If a plant grows in a rainforest, so it needs …… to adapt for getting more sunlight.

a) small roots b) very tall trunk

c) sharp spines d) all previous answers

19- The two trees that can send smelly messages through the wind are……..

a)Kapok and water lily trees. b) Acacia and palm trees.

d) Acacia and kapok trees. d) Mangrove and pine trees.

20- All of the following properties protect acacia leaves from being eaten by animals except that……..

a) they are high enough b)they are brightly colored

c)they are guarded by sharp spines d) they produce poison

21- The needed energy to perform different functions of a living organism is obtained from……..

a)Breathing only. b) Food processing only.

c) Breathing and running. d) Food processing and breathing.

22- In the mouth teeth and tongue break down the food with the help of……..

a) Saliva b) Pancreatic juices c) Liver juices c) Stomach acids

23- Stomach is a part of the digestive system that……

a) chewing food

b) converts solid food into soupy liquid

c) absorbs nutrients from food.

d) delivers food into the esophagus.

24- All the following are similarities between human and fish respiratory system except…….

a)Both breathe in oxygen. b) Both have lungs.

c) Both breathe out carbon dioxide.

d) In both blood vessels carry oxygen to the body.

25- Fish extracts oxygen out of the water by……..

a) skin b) gills c) lungs d) fins

26- From the negative effects of human activities on the human health are…..

a) lung damage and asthma b) heart problems and wounds

c) lung damage and wounds d) asthma and wounds

27- To know if a cup of water is hot or cold we need to use the sense of……..

a) taste b) hearing c) touch d) smell

28- The sharpest sense that dolphins have is the sense of…….

a) taste b) hearing c) touch d) smell

29- To detect the place of a table in a completely dark room you need to use the sense of……..

a) taste b) hearing c) touch d) smell

30- Bat is ……. animal.

a) nocturnal b) morning c) harmful d) wingless

31- Owls have all the following properties to sense distant preys except……..

a) large eyes b) bowl-shaped face

c) head rotates in all directions d) weak sense of hearing

32- All of the following are components of the nervous system except……..

a) spinal cord b) lungs c) brain d) nerves

33- Imagine that you touch a cube of ice with your finger. Where this message is processed and translated?

a) Finger b) Hand c) Brain d) Nerve

34- Which of the following is a source of light?

a) The moon b) The eyes c) Fire d) Mirror

35- When light falls on a dark surface……..

a) the surface absorbs the light. b) the light is refracted.

c) light passes through it. d) nothing happens.

36- All the following have structural adaptation in their sense of sight so it is strong except…….

a) Owl b) Fishing cat c) Bat d) Panther chameleon

37- There is a mirror-like membrane in all of the following except……..

a) the horse b) the cat c) the human d) the deer

38- Night vision goggles look like …….. that present in nocturnal animals.

a) Pupils b) Nerves c) mirror-like membrane d) Blood vessels

39- Which of the following allows the light pass through it?

a) moon b) wood c) glass window d) plastic

40- Painted (opaque) surface…….. the incoming light rays.

a) Absorbs only b) Reflects only

c) Allows to pass d) Absorbs and reflects

41- Raise the thumb up or lower it down a kind of …….

a) colors b) codes c) lights d) waves

42- All the following are forms of codes, except……

a) Faces expressions b) Writing

c) Colors of traffic light d) swimming

43-To communicate through the sense of sight we need……

a) hearing music b) making sound

c) moving d) availability of light

44-You could determine how high music sound by……..

a) sound style b) sound frequency c) pitch of sound d) sound type

45-…….. Can communicate by displaying light.

a)All animals b) All plants

c) All plants and animals d) Humans and some animals

46-Animals can communicate with each other through…….

a) sounds and lights b) talking c) reading d) writing

47-Humans can communicate using all the following except……..

a) sound b) light c) movements d) flying

48-Which of the following communications uses the sense of sight only?

a)Watching TV. b) Flashing light of fireflies.

c) Echolocation in dolphins. d) Using the cell phone.

49-Which of the following communications uses the sense of hearing only?

a) Rescue flare. b) Flashing light of fireflies.

c) Echolocation in bats. d) Using the cell phone.

Write the scientific term:

1-A habitat in which living organisms live. (ecosystem)

2-Is a change over generations that help organisms to survive and reproduce. (adaptation)

3-Change in the structure of the animal's body. (structural adaptation)

4-Change in the behaviors of a group of animals. (behavioral adaptation)

5-Death of living organisms because they can't adapt to the conditions of its environment. (extinction)

6-The animal that has an insulating layer of fat and thick downy feathers. (Penguin)

7-A type of adaptation that helps an animal to hide. (Camouflage)

8-The animal that panting to lower its body temperature. (Fennec fox)

9-A feature in bull shark, in which the upper surface of its body is darker than its lower surface. (counter-shading)
10-A tree produces a poison to make the leaves taste very bad to defend itself. (acacia tree)
11-Liquid that moistens food in mouth to facilitate swallowing. (saliva)
12-The organ in which food is broken down into soupy liquid. (the stomach)
13-The organ that absorbs the food nutrients to move into the blood. (small intestine)
14-The organ that absorbs water from undigested food. (large intestine)
15-The organ through which solid wastes of digestion leave the body. (anus)
16-A gas presents in air and water and is very important for breathing process. (oxygen)
17-The property that depend on the sense of hearing through which dolphins locate their preys under water. (echolocation)
18-Animals that becomes active at night. (nocturnal animals)
19-The property related to the bouncing of sound waves back when the sound waves hit objects. (echolocation)
20-A flying mammal that use echolocation to locate its prey. (bat)
21-The main control center of the body. (the brain)
22-Part of the nervous system passes through the backbone, and carries messages from body to brain and vice versa. (spinal cord)
23-Small branches from the spinal cord that distributed throughout all parts of the body. (nerves)
24-A desert rodent with a small body, very large ears and small eyes. (jumping jerboa)
25-An animal that can escape from enemies because of the length of its hind leg. (jumping jerboa)
26-The time taken by jerboa to react to danger. (reaction time)
27-Messages that are so fast that you can't realize it. (reflex actions)
28-A membrane on the back of eyes of some nocturnal animals that helps them have excellent night vision. (mirror like membrane)
29-The visible form of energy. (light energy)

30-Anything that gives off its own light. (light source)
31-Objects that allow light to pass through. (transparent objects)
32-Objects that don't form shadows. (transparent objects)
33-Objects that don't allow light to pass through. (opaque objects)
34-Objects that form shadows. (opaque objects)
35-Information that is transformed into another representative form. (code)
36-Small winged beetles that use their wings to flash. (Fireflies beetles)
37-A pattern that has a meaning. (code)
38-Ants sending smelly message when there is a shortage of food. (Nurse ants)
39-A simple tool used by blind people to walk safely. (blind people cane)

Put (√) or (X) then correct the wrong:

1-Penguins have special blood vessels in their feet that help them survive in polar region. (√)
2-Penguins have no feathers on their feet. (√)
3-The feet of the penguin freeze in cold winter. (X)
4-The white fur of the arctic fox helps it to blend in with snow. (√)
5-The bodies of fennec foxes, penguins, and caracals are adapted to live in extreme hot climate. (X)
6-The fur that some animals possess to protect them from the cold is a behavioral adaptation. (X)
7-Bull sharks have less competition for finding food in fresh water. (√)
8-Frogs are reptiles while panther chameleon is amphibians. (X)
9-Animals can't eat Barbary fig due to its sharp spines. (√)
10-Pine trees live in desert habitat and have needle leaves. (√)
11-Mangrove tree adapt to resist water waves by having long strong leaves. (X)
12-Kapok tree has hand shaped leaves. (√)
13-Acacia tree grow in Amazon forest. (X)
14-Plants need long roots that extend deep into the soil to survive in the water scarce. (√)

15- Plants have two types of adaptation structural and behavioral. (√)
16- All living organisms need food and oxygen gas to get energy. (√)
17- Food turns from complex to simple during digestion. (√)
18- Esophagus does not absorb food. (√)
19- No digestion takes place in the large intestine. (√)
20- Exhaled air is loaded with oxygen. (X)
21- The respiratory system is responsible for the entry of air into the body. (√)
22- Both salamander and fish can breathe through lungs. (X)
23- Man cannot restore the ecosystem with any way. (X)
24- The nervous system works separately from the five senses. (X)
25- Seeing with our eyes is a way to help us gather information about the environment around us. (√)
26- The ear is the sense organ responsible for seeing objects. (X)
27- Every part of the nervous system can work individually. (X)
28- Foxes have a strong sense of hearing and sight. (√)
29- The skin is the sensory organ that makes you feel the smooth of the cloth. (√)
30- Dolphins have a sharp sense of hearing and sight. (X)
31- The brain sends automatic signal so that we can breathe. (√)
32- Bats can see well in the dark. (X)
33- Your sensation of thunder and lightning depends on your senses of hearing and sight. (√)
34- The time taken by jerboa to react to danger is less than one second. (√)
35- The body can respond to more than one external stimulus at the same time. (√)
36- In a completely dark room, some light entering the eyes. (X)
37- Eyes of nocturnal animals are adapted to see in the total darkness. (X)
38- Some animals can see at night, such as a wild cat. (√)
39- You can see a green ball inside a transparent glass box. (√)
40- Wood is a transparent object that allows light to pass through it. (X)
41- Fishing cat can detect very faint light levels. (√)

42- The Egyptian mongoose makes a group of sounds to communicate with other mongoose. (√)

43- Echolocation is a type of communication between owls. (X)

44- In order for the code to be translated, the brain must identify it. (√)

45- Red and green traffic lights are codes. (√)

46- Fireflies are wingless beetles. (X)

47- It is possible for human to interact with fireflies. (√)

48- Animals can use more than one sense to communicate with each other. (√)

Correct the underlined words:

1-Short ears of arctic fox belong to <u>behavioral</u> adaptation. (structural)

2-Panting in dogs and fennec fox belongs to <u>structural</u> adaptation. (behavioral)

3-Caracals have <u>colorful scales</u> to adapt their desert landscape. (tan-colored fur)

4-Camouflage in fennec foxes takes place through their <u>white</u> colored fur. (sandy)

5-Thick fur helps polar bear to stay <u>cool</u> in cold environment. (warm)

6-<u>White fur</u> helps bears to blend in with the trees while hunting. (Dark or brown fur)

7-<u>Fishing cat</u> is similar to fennec fox in having sandy-colored fur. (Caracal)

8-Bull sharks have less competition for finding food in <u>salt</u> water. (fresh)

9-Both of panther chameleon and kapok tree survive in <u>polar</u> habitat. (rainforest)

10- Both of fennec fox and palm tree survive in hot <u>forest</u> habitat. (desert)

11-In bull shark the lower surface of its body is <u>darker</u> than its upper surface. (lighter)

12-Lizards are from <u>mammals</u> that are ancient type of animals. (reptiles)

13- The body of some types of lizard is covered with colored <u>fur</u> to blend in with colored rocks. (scales)

14- Kapok tree sends delicious messages to attract <u>owls</u>. (bats)

15- Adaptation to store water is an important character for plants that live in rainforest habitat. (desert)

16- When running and making an effort, the number of breathing times decreases. (increases)

17- The wall of small intestine has tiny nerves to absorb the nutrients. (blood vessels)

18- Pancreas and liver secrete juices that flow into large intestine to break down food into nutrients. (small intestine)

19- Amphibians live in dry environment. (wet)

20- When you determine a sweet or bitter taste, you have used your eyes. (tongue)

21- Bats use their sense of smell to hunt and avoid obstacles. (hearing)

22- The Egyptian jerboa is one of desert reptiles. (rodents)

23- Humans use their digestive system to sense and process information. (nervous)

24- The brain responds to information sent by the sense of sight slower than information sent by the sense of hearing. (faster)

25- Nerves of nose and heart are connected directly to the brain. (eyes)

26- Wood and carton are considered transparent materials. (opaque)

27- Light travels in zigzag lines in the form of light waves. (straight)

28- Things can't be seen through transparent objects. (opaque)

29- Scout ants sending smelly message if there is a danger nearby to protect the colony. (Soldier)

Compare between inhalation and exhalation using these words:

(Carbon dioxide-downward-Relax-Increase-Contract-Oxygen-upward)

Point of comparison	Inhalation	Exhalation
Diaphragm movement	Contract, and move downward.	Relax , and move upward.
Size of chest cavity	Increase.	Decrease.
The air rich in	Oxygen gas.	Carbon dioxide gas.

Choose from column (B) what suits it in column (A):

1)

Column (A)	Column (B)
1- A common organ in the digestive and respiratory system.	a) Carbon dioxide
2- The process of pushing air in and out of the body.	b) Respiration
3- Branches inside the lung that resemble tree branches	c) Pharynx (throat)
4- A gas produced by respiration.	d) Diaphragm
5- A muscle that has an important role in the breathing process.	e) Bronchioles

1	2	3	4	5
c	b	e	a	d

2)

Column (A)	Column (B)
1-Owl	a) Eyes glow to see at night.
2-Fishing cat	b) Use echo to locate preys under water.
3-Dolphin	c) The prey of the snake and hops to escape in zigzag path.
4-Bat	d) The face shape collects and amplify different sounds.
5-Jerboa	e) Sleep upside down and depend on echo of the sound to locate preys.

1	2	3	4	5
d	a	b	e	c

3)

Column (A)	Column (B)
1-The visible form of energy that is transmitted in the form of waves.	a) mirror- like membrane
2-A structural adaptation in the eye that provides some animals with better vision at night.	b) Light
3-When an object falls from your hands.	c) Smell
4-When a foreign object is brought into your eyes	d) Using the sense of sight
5-Ants use it to sense and communicate	e) The reflex action occurs.

1	2	3	4	5
b	a	d	e	c

4)

Column (A)	Column (B)
1-A way to communicate between some animals like Fireflies beetles.	a) Brain
2-Carry messages to the brain via the spinal cord.	b) Spinal cord
3-It is similar in its processing of information to a computer.	c) Nerves
4-Animals live in water and communicate by songs.	d) Flash light
5-Responsible for the transmission of commands through nerves to the muscles to contract.	e) Humpback whales

1	2	3	4	5
d	c	a	e	b

Give reason for the

1-Adaptation is an important trait of living organisms.

- **Because it helps them to survive and reproduce in the ecosystem.**

2-Some animals have the ability to make camouflage adaptation.

- **To hide from their predators and preys in different environments.**

3- The penguin has an insulating layer of fat and thick downy feathers.

- **To trap warm air against skin.**

4- The polar bears (or arctic foxes) have thick fur.

- **To keep its body warm in the freezing cold.**

5-Forest bears have dark or brown fur.

- **To blend in with the trees while hunting (to make camouflage).**

6-Polar bears (or arctic foxes) have white fur.

- **To blend in with the snow while hunting (to make camouflage).**

7-Arctic fox has short ears and legs.

- **To help it stay warm.**

8-Fennec fox has extra-large ears. (Fennec fox pants like dogs)

- **To help it stay cool.**

9-Panther chameleon is covered with colored scales.

- **To make camouflage and hide between leaves and flowers.**

10- Chameleons can move each of their eyes in a different direction.

- **To help it catch its prey and avoid predation by another animal.**

11- Panther chameleon has V-shaped feet and tail like a hand.

- **To hold tightly the branches of trees.**

12- Bull shark has sharp teeth.

- **To sneak up its preys.**

13- Bull sharks have less competition for finding food in fresh water.

- **Because there is no other sharks live in fresh water.**

14- Desert lizard looks for shade during hot sunny days.

- **To keep its body cool.**

15- The leaves of plants that float above the water surface are so wide.
- To get large amount of sunlight.

16- The shape of pine tree leaves is like a needle.
- To prevent losing of water.

17- Barbary fig has sharp spines.
- To prevent animals from eating its fruits.

18- Kapok tree has large wide roots that grow up on its trunk.
- To firmly hold the tree.

19- Kapok tree has hand-shaped leaves.
- To prevent tearing by wind.

20- Pine tree has a triangular shape and short branches.
- To prevent breaking by snow falls.

21- Saliva is very important in your mouth.
- It moistens food to facilitate swallowing.

22- The small intestine has tiny blood vessels.
- To absorb the nutrients through its walls.

23- The inhaled air is different from the exhaled air.
- Because inhaled air carry oxygen gas while exhaled air carry carbon dioxide gas.

24- Gills are unique structural adaptation in fish.
- Because they help fish absorb oxygen from water to breath.

25- Amphibians are endangered species.
- Because their number is decreased in the last few years.

26- Dogs are used in guarding.
- Because they have sharp sense of hearing and smell.

27- Dolphin can hear all kind of sounds.
- Because it has sharp sense of hearing.

28- A dolphin can locate living organisms and things under the surface of the water.
- As it use echolocation property.

29- Bats cannot see in the dark, but they hunt their prey at night.

- **Because it has sharp sense of hearing so can use echolocation.**

30- Owls can hunt during night.

- **Because they have extra-ordinary senses of hearing and sight.**

31- The jumping jerboa can jump for long distances.

- **Because it has long hind legs.**

32- Feet and toes of jerboa have hairs.

- **To catch sand when jump in zigzag paths.**

33- Some animals have a structural adaptation in their eyes.

- **To help them see at night.**

34- Some animals like cats have the ability to see in the dark.

- **Because they have mirror like membrane.**

35- Moon is not a source of light.

- **Because it reflects the sunlight.**

36- You can see an object placed behind a glass cup.

- **Because the glass cup is a transparent material that allow light to pass through.**

37- Mirror reflects light better than painted surface.

- **Because mirror is shiny and smooth while painted surface is rough.**

38- You can't see an object placed behind a wood door.

- **Because the wood door is opaque material that don't allow light to pass through.**

39- Fireflies produce a chemical reaction inside their bodies.

- **Because this allows them to light up to communicate.**

40- Fireflies use flashing light to communicate.

- **To warn off predators, or to attract a mate to reproduce.**

41- Humpback whales sing different songs.

- **To communicate with each other.**

42- The songs of Humpback whales have high pitched sounds in winter.

- **Because they travel better through cold water.**

43- The hearing sense is very important for bats.

- **Because they use sounds to communicate and to locate their preys.**

What happens if……?

1- Animals can't adapt their environment.

- **They can't survive and reproduce.**

2- The polar bears have thin fur instead of thick fur.

- **It can't adapt with the very cold weather.**

3- Forest bears are coated with white fur.

- **Cannot hide or hunt by camouflage.**

4- Arctic fox has brown fur in winter, while it has white fur in summer.

- **Cannot hide or hunt in winter or summer.**

5- A plant is taken from its original habitat and placed in another different environment.

- **It may die or may adapt with the new habitat to survive.**

6- The small intestine is removed from the human body.

- **The digestive system can't do its function.**

7- Diaphragm moves downward during inhalation.

- **The size of chest increases and oxygen gas enter to lungs.**

8- Diaphragm moves upward during exhalation.

- **The size of chest decreases and carbon dioxide gas comes out lungs.**

9- Owl can't rotate its head in all direction.

- **It can't search for food everywhere.**

10- The structure of fishing cat's eyes is the same like human.

- **Eyes can't glow and fishing cat can't see well at night.**

11- Light falls on smooth and shiny surface.

- **Light will reflect in one directions.**

12- Light falls on rough surface.

- **Light will reflect in different directions (scattered).**

13- A firefly wants to attract mates.

- **It produces chemical reaction and lights up.**

14- The amount of food in ants colony decreases.

- **Nurse ants send smelly messages to alert scout ants.**

Answer the following questions:

1- Jerboa has long and strong hind legs that help him to jump quickly and escape when danger. Determine the type of adaptation.

Solution:

Structural adaptation: long and strong hind legs.

****

2- The husky dogs live in a cold environment, while another type of dogs live in a hot environment. In your opinion, which one has thick fur? And why?

Solution:

- The husky dogs that live in a cold environment.

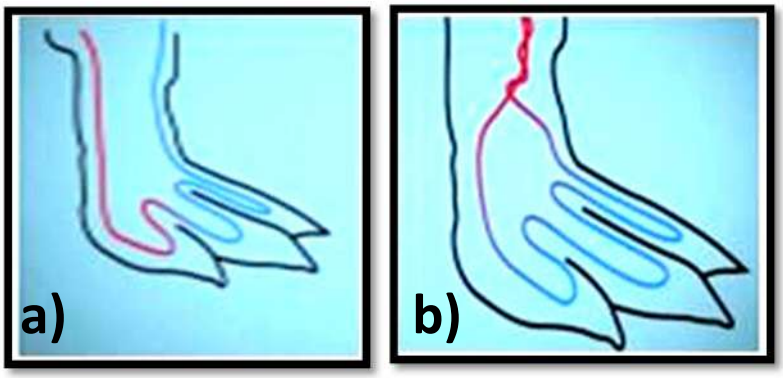
- The thick fur keeps their body warm.

****

3- Which figure shows the correct structure of blood vessels in the feet of penguins? Explain how do this adaptation help penguins survive in cold climate ?

Figure (b).

Because Blood vessels weave around each other to keep its toes from freezing.



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4-Panther chameleon puffs up its body with air for defense. What is the type of adaptation?

Behavioral adaptation.

****

5-Mohamed drives his bike and while that he hears a car behind him, he turns away so as not to hit it. Which system inside the body received a signal made Mohamed realize that?

The nervous system

6-Adam hurt his toe when he climbed. How did he know that he had hurt his toe?

a) The nerves in his hurt toe sent a signal through his body to the brain.

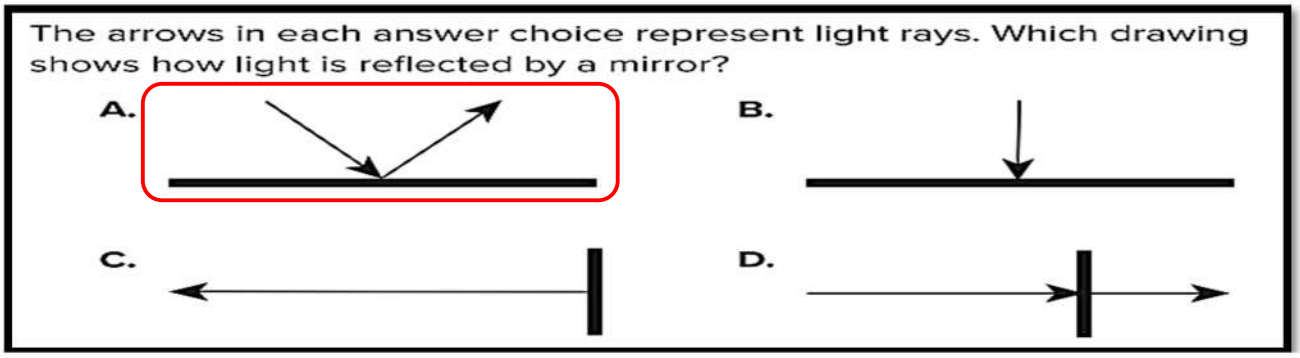
b) The blood in his hurt toe sent a signal through his body to the brain.

c) Adam toes became very cold.

d) Adam toes became smaller.

****

7- choose the correct figure:



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8- To see what was inside a box without having to open the box. What material should be used? (wood – mirror – transparent plastic – carton)

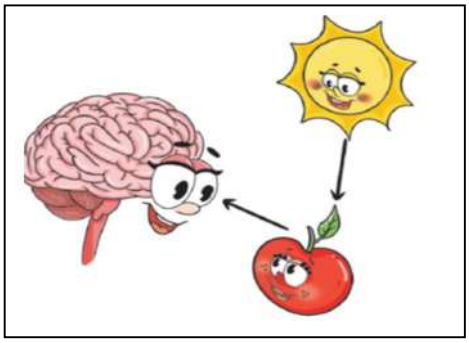
****

9- To prevent the light from entering your room, suggest some materials that you can use to cover the window.

Solution: any opaque object like carton, wood, thick plastic.

****

10- look to the figure then complete:

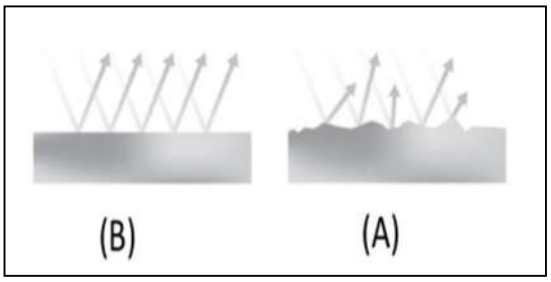


The light falls on the apple then it is reflected on the eyes , so the eyes transmit the message to brain then he interprets it and translates it, so we see the apple.

11- look to the figure then complete:

the surface represents the reflection of light rays from a wooden spoon is Surface A

Because it is a rough surface.



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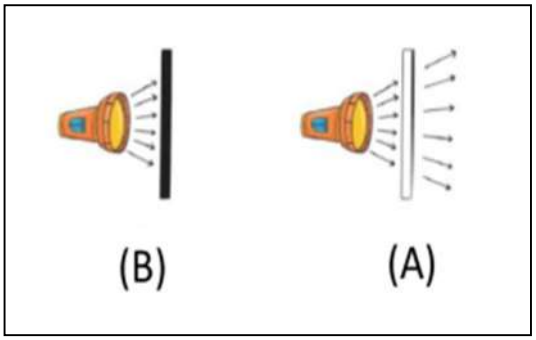
12- look to the figure then complete:

Object (A) is (transparent – opaque).

Object (B) is (transparent – opaque).



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13-look to the figure then complete:

the figure represents a transparent object is Figure 2

the figure represents an opaque object is Figure 1

****

14- Who I am: a body that appears light at night, but isn't considered as a source of light?

The moon.

****

15- What is a common mean of communication between some animals and human?

- Using codes in form of sound, light, or movements.

Cross out the odd word:

1- Penguin – polar bear – arctic fox – fennec fox.

2- Cactus plant – palm tree – Barbary fig – pine tree.

3- Acacia tree – polar bear – pine tree – penguin.

4- Mouth – lungs – stomach – small intestine.

5- Nose – trachea – anus – air sacs – lungs.

6- Toads – panther chameleon – frogs – salamanders.

7- Panther chameleon – starred agama lizard – bull shark – arctic fox.

8- Smell – taste – eye – hearing.

9- Eye – Nose – taste – skin.

10- Brain – spinal cord – nerves – stomach.

11- Sun – moon – flashlight – fire.

12- Moon – mirror – eye – candle.

13- Fishing cat – owl – dolphins – tarsier.

14- Wood – paper – metals – air.

15- Wood – glass – air – water.

16- Bats – fireflies – dolphins – blind person's cane.

Best wishes
Dr/ Zeinab Salah

Final Revision on unit 2

Complete the following sentences using the following words:

(1) (increases – balanced – Energy – gravity – unbalanced)

1-The force acting on body is ……., so object move.

2-The force that pulls objects toward the center of Earth is …….

3-When the force acting on object increases the motion of the object …….

4-Object doesn't move when ……force acting on it.

5-…… gives us a force that enables us to do work.

****

(2) (elastic – thermal – Potential – light – electrical – Kinetic)

1-…… energy is the amount of energy that is stored in an object due to its position.

2-…… energy is the energy of an object due to its motion.

3-The energy stored in a compressed spring is ……potential energy.

4-Electrical lamp operates with …… energy that changes to ……and …… energy.

****

(3) (bigger – Airbag - increases - potential - more)

1-Fast cars cause damage …… than slow cars.

2-In cricket game, the speed of the ball ……when the player hits it.

3-……is a big pillow in cars to land against during a crash.

4- The truck has engine …… than that of car.

5-In Newton's cradle the ball stores …… energy at the highest position.

(4) (forward – increases – collision - decreases – kinetic)

1-When a car uses brakes to decrease its speed, its kinetic energy ……

2-By increasing the mass of the object the kinetic energy …….

3-The moment where 2 objects hit in a forceful way is …….

4-When the car stops suddenly driver's body continues to move …….

5-Object that has a big mass, has more ……energy.

Complete the following sentences:

1- (Static – Moving) body doesn't move unless there's a (force – energy) acting on it.

2-When the position of a body changes according to a fixed point, the body (stops – moves).

3-(Energy – Force) is a push or pull that is applied to an object to change its (mass – position).

4-The moving object stop when it face another force that is (equal – unequal) in magnitude and in (opposite – same) direction.

5-Rope of tug war game moves toward the (greater – smaller) force when (balanced – unbalanced) force acting on it.

6-When we push a car gently, the car moves (slower – faster) and covers (short – long) distance.

7-(Energy – Work) is a force that causes an object to move a distance.

8-Opening a drawer is (push – pull) force, while kicking a ball is (push – pull) force.

9-Hitting a tennis ball needs a (pulling – pushing) force.

10-The shockwave truck has been fitted with (2 – 3) jet engines to increase its (mass – speed).

11-When you sit on the chair without moving. What is the name of the force that pulls you downward? (friction – gravity)

12-The seesaw moves up and down because the forces that act on it are (balanced – unbalanced).

13- The friction force acts in (same – opposite) direction of the object's movement to (stop – move) it.
14- By increasing the number of fire extinguishers, the speed of the cart will (decrease – increase).
15- The shockwave truck installed with 3 (jet engines – parachutes) to stop it, and this is the same idea of stopping a moving (truck – rocket).
16- The motion of the car is opposed by the (gravity – friction) of the air.
17- At the top of ramp object stores (gravitational- chemical) potential energy.
18- When you hold a ball it stores (potential – kinetic) energy, but when you let it falls down to the ground the ball has (potential – kinetic) energy.
19- When a person pushes a car forward, his body begins to sweat heavily because his body (consumes - increases) his stored energy.
20- Light and sound energies belong to (potential – kinetic) energy.
21- In gas oven the natural gas stored (chemical – electrical) energy that changes to (sound – thermal) energy.
22- When the roller coaster slides down fast, its kinetic energy (decreases –increases).
23- The speed of roller coaster when it moves toward the top of the hill is (more – less) than that when it moves down the ramp.
24- As the height of an object from the earth's surface increases, its potential energy (decreases –increases).
25- Which formula can be used to calculate speed? (distance/time – time/distance)
26- The speed is a measurement of how (long – fast) something is moving.
27- Object that move faster has more (potential – kinetic) energy.
28- When Malak travels with her bicycle a distance of 30 km in 2 hours, then she is moving at a speed of (20 km/hr. – 15 km/hr.).
29- A horse is faster than a human, as the human covers a (less – greater) distance at the same time.
30- (Kilometer – Meter) is a measuring unit for long distances.

31-If the acting forces on a moving body decrease, the speed of this body (decreases – increases).

32-As the angle of inclination increases the speed of object (increases – decreases) and its (potential – kinetic) energy increases.

33-The speed of objects differs according to their (mass – color).

34-Object moves a given distance in a shorter time is moving at a (greater – slower) speed.

35-Which of the following consumes less fuel? (a truck – a small car)

36-Car seat-belt is used to keep the driver from moving (forward – backward) during collision.

37- A train has kinetic energy (more than – less than) the car.

38-Kinetic energy is (lost – transferred) during collision.

Choose the correct answer:

1-When does the ball on the ground move?

a)It won't move. b) when a force acts on it.

c) when light falls on it. d) when gravity increase.

2-Which of the following indicate motion?

a) bicycle b) sunlight c)running water d) guitar string

3-When a body moves forward, the change that occurs is in ……..

a) the position of the body. b) the size of the body.

c) the mass of the body. d) the Earth's gravity.

4-Objects need a force to move, this force is called …….

a) pushing force only b) pulling force only

c) pushing and pulling together d) the gravity only

5-All the following considered as force except……..

a) electric b) gravity c) push d) friction

6-All of the following are examples of motion, except……....

a) a running person b) a ball travelling through the air

c) a flying bird d) a sleeping dog.

7-The body moves slow or fast or change its direction due to a …….. acting on it.

a) force b) wind c) gravity d) height

8-When we push or bull a car, this need ……..

a) weight b) mass c) height d) energy

9-The force that makes the ball in the air fall down to the ground is……

a) friction b) gravity c) push d) light

10-The force that occurs when objects rub against each other is ……..…..

a) speed b) friction c) gravity d) wind

11-All of the following are examples of pulling force except……

a)open a drawer b) kicking a ball

c) lifting a bag d)gravity

12-All of the following are examples of pushing force except…….

a)close a drawer b) kicking a ball

c) lifting a bag d) press on electrical switch

13-When ball stands on the ground without moving, the forces acting on it is…….

a) balanced b) unbalanced c) not equal d) pushing up

14-The amount of energy required to move an object through the force acting on is called……..

a) force b) work c) gravity d) pushing

15-When you clap your hands, kinetic energy of your hands becomes……..

a) sound energy only b) heat energy only.

c) sound energy and heat energy. d) chemical energy.

16- Which ball has kinetic energy but not potential energy?

a) a ball rolling down a ramp b) a ball sitting on a high shelf

c) a ball bouncing up and down d) a ball rolling on a flat sidewalk

17-Which type of energy change occurs when a person rides a bike?

a) heat energy changes to potential energy

b) chemical energy changes to kinetic energy

c) solar energy changes to chemical energy

d) kinetic energy changes to nuclear energy

18- Which of the following can store energy?

a) battery b) wire c) plastic d) rubber

19- The chemical energy stored in batteries is considered a form of …….

a) kinetic energy b) potential energy

c) electrical energy d) mechanical energy

20- Heat energy is a type of……..

a) kinetic energy b) potential energy

c) electrical energy d) chemical energy

21- Potential energy of an object depends on……..

a) its mass only b) its shape

c) its height from the earth's surface only

d) its mass and its height from the earth's surface

22- In …….. electrical energy changes into heat energy.

a) battery b) electric iron c) radio d) hand bell

23- When roller coaster stops its kinetic energy……..

a) increased b) decreased c) doesn't change d) becomes zero

24- The roller coaster has the most energy of motion when it…….

a) moves up to the top of hill b) moves down along the hill

c) stops at the top of hill d) stops at the bottom of hill

25- Scientists classify all forms of energy into 2 types which are…….

a) chemical energy and kinetic energy

b) potential energy and kinetic energy

c) potential energy and electrical energy

d) sound energy and light energy

26- Chemical energy can be stored in……..

a) food b) batteries d) fuel d) all the previous

27- How is speed measured?

a) distance traveled per unit of time

b) time per unit of distance traveled

c) mass per unit of distance traveled

d) volume per unit of mass

28-If a Car covered a distance of 10 meters in a time of 2 seconds, so the speed of the car is…….

a) 50m/sec. b) 20m/sec. c) 5m/sec. d) 2m/sec.

29- The amount of kinetic energy of an object increases as …….increases.

a) speed only b) mass only c) force only d) all the previous.

30-Gana is going down the slide. Her mother gives her a push. How does the push affect her motion down the slide?

a) The push decreases her speed.

b) The push increases her speed.

c) The push does not affect her speed.

d) The push stops her downward motion.

31-Which one of the following may cause the most damage?

a) A fast and heavy Vehicle. b) A slow and light Vehicle

c) A Big Vehicle. d) a and c

32-…… is (are) from the most important equipment during collision.

a) Brakes b) Car seat-belt c) Air bag d) b & c

33-Air bags are made of ……..…..... material.

a) thin b)rubber c) nylon d) a and c

34- From the elements which cause danger while driving cars…….

a) car tires b) seatbelts c) fast driving d) no correct answer

35- The collision between the bat and the ball results in ……..

a) Kinetic Energy b) Sound Energy

c) electric energy d) a and b.

36-Fast objects cause ……..

a) great damage that can be repaired.

b) great damage that can't be repaired.

c) small damage that can be repaired.

d) small damage that can't be repaired.

37- The effect of collision depends on the …… of the moving objects.

a) speed b) direction c) color d) a and b

38- The collision between two moving objects produces …… energy.

a) kinetic b) heat c) sound d) all the previous.

39- During collision, kinetic energy …… .

a) transfers from the slow object to the fast object.

b) transfers from the fast object to the slow object.

c) is destroyed and lost in the air.

d) changes into potential energy.

40- The effect of collision increases by …… the speed of the moving object.

a) increasing b) decreasing c) keeping d) no correct answer.

41- During the collision of moving bodies, …… .

a) energy transfer occurs. b) energy changes occur.

c) damage occurs. d) all the previous.

42- The car with speed …… has the highest kinetic energy.

a) 100 km/h b) 80 km/h c) 60 km/h d) 40 km/h

43- The kinetic energy of an object sliding on a ramp depends on the …….

a) angle of the ramp. b) mass of the object.

c) height of the ramp. d) all the previous.

44- In Newton's cradle the ball stores potential energy when ……

a) the ball is raised up. b) you leave the ball.

c) the ball hits the 1st other ball. d) no correct answer.

45- In Newton's cradle the potential energy is converted gradually to kinetic energy when ……

a) the ball is raised up. b) you leave the ball.

c) the ball hits the 1st other ball. d) no correct answer.

46- By increasing the mass of the object …….

a) The consuming fuel increases. b) the kinetic energy increases.

c) cause more damage during collision. d) all the previous.

47- What happens to the direction of the ball when hit with a bat?

a) Stay constant. b) Moves in the same direction.

c) Moves in a different direction. d) no correct answer.

Write the scientific term:

1-A change in the position of an object relative to a fixed point. (…….)
2-The ability to do work or make a change. (…….)
3-A force that moves an object away from you. (…….)
4-The force that tries to slow or stop an object moving on a surface. (…….)
5-The form of energy that increases when the speed of an object increases. (…….)
6-A type of fuel that is used inside gas oven to obtain thermal energy. (…….)
7-A type of fuel that is used inside car to obtain kinetic energy. (…….)
8-The distance travelled in a certain amount of time. (…….)
9-A very heavy steel ball that helps knock down walls. (…….)

Put (√) or (X) in front of the following statements:

1-When we push a car hardly, the car moves slower and covers long distance. ( )
2-The stopping object can't move until force acting on it. ( )
3-Force and energy are different but they are related to one another. ( )
4-When object moves upward the force acting on it is balanced. ( )
5- A force always causes movement. ( )
6-A force is a push or a pull. ( )
7-A static ball moves on the ground if it is affected by a force. ( )
8-The rotation of Earth around the sun is easy to be seen. ( )
9-The shockwave truck is one of the fastest and most powerful trucks in the world. ( )
10-If you move a chair through a distance, there is a work done. ( )
11-Human needs energy stored in food to do activities. ( )
12-Moving object has higher potential energy. ( )
13-In electric lamp the electrical energy changes to light and thermal energy. ( )

14- When you kick a ball, kinetic energy is produced. ( )
15- Existing energy can be destroyed or lost. ( )
16- In the electric fan, the kinetic energy is converted into electric energy.( )
17- Energy can be stored in many different forms. ( )
18- Energy can't be changed from one form to another. ( )
19- The moving objects only have energy, while the objects that don't move have no energy. ( )
20- When a car crashes into a wall, it will not stop. ( )
21- We can see the movement of electricity through a wire. ( )
22- The faster the speed of an object, the shorter distance it can travel in a set time. ( )
23- Energy is neither destroyed nor created from nothing. ( )
24- The faster the speed of an object, the less amount of time it takes to travel a set distance. ( )
25- The speed of an object increases as the amount of time traveled increases. ( )
26- The speed of an object is affected by the direction of this moving object. ( )
27- The speed of an object is measured in (m/sec) and (km/hr). ( )
28- All objects move at similar speeds around us. ( )
29- If you want an object to go slower, you must reduce its kinetic energy.( )
30- The more force applied to an object, the faster it goes. ( )
31- As the speed increases the potential energy increases. ( )
32- Objects has a big mass has less kinetic energy. ( )
33- Energy can be transformed easily from one form into another form. ( )
34- Light objects cause damage more than heavy objects. ( )
35- Kinetic Energy is transferred when two objects hit each other. ( )
36- Faster and heavier objects have more energy than slower lighter objects. ( )
37- The speed and kinetic energy of moving object on a ramp increased by decreasing the angle of the ramp. ( )
38- Slow moving object has less energy and causing less damage. ( )

Correct the underlined words:

1-Parked car is affected by unbalanced force. (…….)

2-When you move object toward you this represents pushing force. (…….)

3-Gravity pulls objects upward. (…….)

4-Push or pull actions are considered as types of energy. (…….)

5-Any object moves from its place when the forces acting on it are balanced. (…….)

6-There is a gravity force between the car tires and the road that acts to decrease its speed gradually. (…….)

7-A ball at the top of a hill stores electrical energy. (…….)

8- Potential energy is the gained energy during the motion of objects. (…….)

9-From the examples of kinetic energy, the bird which stays in its nest. (…….)

10-Pushing a car is an example of potential energy. (…….)

11-Gasoline contains electrical potential energy. (…….)

12-The friction force produces chemical energy. (…….)

13-Electricity is a form of energy found in the food we eat. (…….)

14-In electric bell, electrical energy changes into light energy. (…….)

15-The kinetic energy increases by increasing the height of the moving object. (…….)

16-The bus that covers 60 kilometers in 1 hour has a speed = 60 m/sec. (…….)

17-Damage will be less severe when two cars collide in the opposite direction. (…….)

18-Heavy objects always have less kinetic energy. (…….)

Choose from column (B) what suits it in column (A):

Column (A)	Column (B)
1-Used to knock down parts of a building.	a) Seatbelt
2-The air bag inflates automatically	b) after collision
3- Used in cars to keep body from moving forward.	c) sound energy
4- During collision, part of the kinetic energy changes into	d) Wrecking ball
5- The air bag deflates fast	e) during collision

1	2	3	4	5
…….	…….	…….	…….	…….

Give reason for the

1-When you kick a ball laying on the ground, it moves.

➢ ……

2-If you let a pen out of your hand, it falls to the ground.

➢ ……

3-If you push a ball on the table it moves for a distance till it stops.

➢ ……

4-The Shockwave truck is faster than the normal truck.

➢ ……

5-Engineers use parachutes in the Shockwave truck designs.

➢ ……

6- The speed of roller coaster increases when it moves down the hill.

➢ ……

7- When a player kicks a ball it moves in air.

➢ ……

8- A bird stops on a tree has energy.

➢ ……

9- When a stone is thrown upwards, its potential energy increases.

➢ ……

10- When you hit a traffic sign post it may vibrate.

➢ .....

11- Seatbelts are very important equipment in cars.

➢ .....

12- When two objects collide with each other, you can hear a sound.

➢ .....

13- A truck needs a bigger engine than that of a small car to move with the same speed.

➢ .....

14- The truck causes more damage than cars during collision although they move at the same speed.

➢ .....

What happens if……?

1- The pulling forces of the two teams are equal in the tug-of-war game.

➢ .....

2- You kick a stopped ball on the ground.

➢ .....

3- You let your toy out of your hand.

➢ .....

4- If there were no energy on earth.

➢ .....

5- Increasing the mass of an object that moves down a ramp.
(according to the kinetic energy)

➢ .....

6- You turn on the T.V. (according to the change of energy).

➢ .....

7- The roller coaster moves down the hill.
(according to the change of energy)

➢ .....

8- You put a battery inside a flashlight then switch it on.
(according to the change of energy)

➢ ……

9- If you operate a washing machine. (according to the change of energy)

➢ ……

10- The moving cricket bat hits a ball. (according to the transfer of energy).

➢ ……

11- The speed of a moving car increases. (according to kinetic energy)

➢ ……

12- You let the ball of Newton's cradle moves toward the rest of balls.
(according to the change of energy)

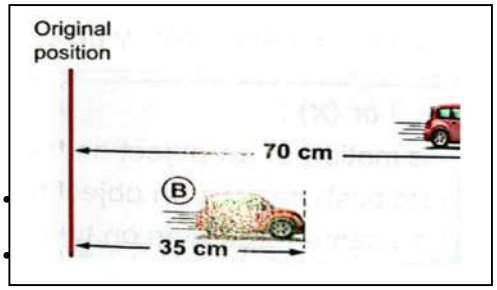
➢ ……

Answer the following questions:

1- Which of these 2 cars is affected by a greater Force? Explain why?

……

……



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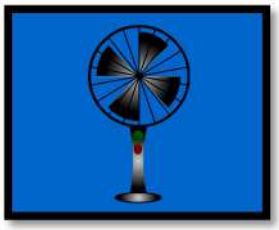
2- In picture (1) energy is changed from

…….. energy to …….. energy.

In picture (2) energy is changed from

…….. energy to …….. energy.

(1)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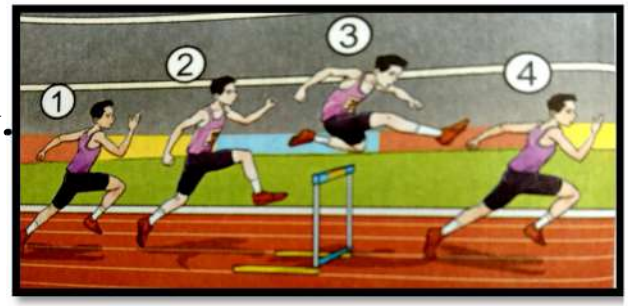
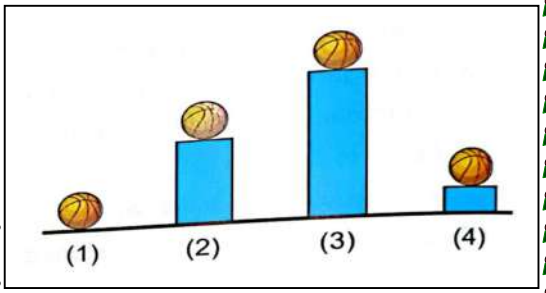
3- In the opposite picture position (3) represent the most ……..energy.
(potential – kinetic).



4- In the opposite figures which ball has the greatest potential energy? Explain why?



……

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5- In the opposite figure:

When the compressed spring is released, a change in energy occurs from ……..…….. energy to …….. energy.

****

6- From the following figure complete:
(different – wooden – bat – sound – ball – increases – kinetic)

a) The boy uses a …….. bat to hit the ball.

b) ……energy is transferred from the ……..to the …….

c) When the boy hit the ball the speed of the ball ……..….. in ……..direction.

d) During collision some of the kinetic energy changed into …… energy.

****

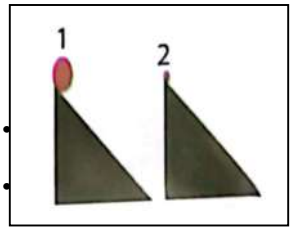
7- From the following figure that shows Newton's cradle complete:

a) When the ball is raised up, it stores …….. energy.

b) When leaving the ball moves in the direction of the rest balls the …….. energy decreases and ……. energy increases.

c) During collision some of the kinetic energy changed into …….. energy due to the friction.

8- In the opposite figure which ball will reach the ground first?
Explain why?



……
……

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9- Calculate that speed of a runner that covers 150 meters in 10 seconds.

……

****

10- Calculate the speed of a train that covers 600 kilometers in a time of 6 hours.

……

****

11- Find the speed of a runner, if you know that he covers 400 meters in 80 seconds.

……

****

12- If the two cars moved at the same time for 20 seconds, car (A) covered a distance of 100 meters, while car (B) covered a distance of 300 meters. Which of the two cars has a higher speed?

……

****

13- If one runner travels 10 kilometers in 1 hour and a second runner travels 10 kilometers in half hour. Which of the two runners has a higher speed?

……

Cross out the odd word:

1- Sound energy – light energy – chemical energy – thermal energy.
2- Sound energy – light energy – electrical energy – thermal energy.
3- Speed – color – time – distance.

Best wishes
Dr/ Zeinab Salah

Final Revision on unit 2

Complete the following sentences using the following words:

(1) (increases – balanced – Energy – gravity – unbalanced)

1-The force acting on body is unbalanced, so object move.

2-The force that pulls objects toward the center of Earth is gravity.

3-When the force acting on object increases the motion of the object increases.

4-Object doesn't move when balanced force acting on it.

5-Energy gives us a force that enables us to do work.

****

(2) (elastic – thermal – Potential – light – electrical – Kinetic)

1-Potential energy is the amount of energy that is stored in an object due to its position.

2-Kinetic energy is the energy of an object due to its motion.

3-The energy stored in a compressed spring is elastic potential energy.

4-Electrical lamp operates with electrical energy that changes to thermal and light energy.

****

(3) (bigger – Airbag - increases - potential - more)

1-Fast cars cause damage more than slow cars.

2-In cricket game, the speed of the ball increases when the player hits it.

3-Airbag is a big pillow in cars to land against during a crash.

4- The truck has engine bigger than that of car.

5-In Newton's cradle the ball stores potential energy at the highest position.

(4) (forward – increases – collision - decreases – kinetic)

1-When a car uses brakes to decrease its speed, its kinetic energy decreases.

2-By increasing the mass of the object the kinetic energy increases.

3-The moment where 2 objects hit in a forceful way is collision.

4-When the car stops suddenly driver's body continues to move forward.

5-Object that has a big mass, has more kinetic energy.

Complete the following sentences:

1- (Static – Moving) body doesn't move unless there's a (force – energy) acting on it.

2-When the position of a body changes according to a fixed point, the body (stops – moves).

3-(Energy – Force) is a push or pull that is applied to an object to change its (mass – position).

4-The moving object stop when it face another force that is (equal – unequal) in magnitude and in (opposite – same) direction.

5-Rope of tug war game moves toward the (greater – smaller) force when (balanced – unbalanced) force acting on it.

6-When we push a car gently, the car moves (slower – faster) and covers (short – long) distance.

7-(Energy – Work) is a force that causes an object to move a distance.

8-Opening a drawer is (push – pull) force, while kicking a ball is (push – pull) force.

9-Hitting a tennis ball needs a (pulling – pushing) force.

10-The shockwave truck has been fitted with (2 – 3) jet engines to increase its (mass – speed).

11-When you sit on the chair without moving. What is the name of the force that pulls you downward? (friction – gravity)

12-The seesaw moves up and down because the forces that act on it are (balanced – unbalanced).

13- The friction force acts in (same – opposite) direction of the object's movement to (stop – move) it.
14- By increasing the number of fire extinguishers, the speed of the cart will (decrease – increase).
15- The shockwave truck installed with 3 (jet engines – parachutes) to stop it, and this is the same idea of stopping a moving (truck – rocket).
16- The motion of the car is opposed by the (gravity – friction) of the air.
17- At the top of ramp object stores (gravitational- chemical) potential energy.
18- When you hold a ball it stores (potential – kinetic) energy, but when you let it falls down to the ground the ball has (potential – kinetic) energy.
19- When a person pushes a car forward, his body begins to sweat heavily because his body (consumes - increases) his stored energy.
20- Light and sound energies belong to (potential – kinetic) energy.
21- In gas oven the natural gas stored (chemical – electrical) energy that changes to (sound – thermal) energy.
22- When the roller coaster slides down fast, its kinetic energy (decreases –increases).
23- The speed of roller coaster when it moves toward the top of the hill is (more – less) than that when it moves down the ramp.
24- As the height of an object from the earth's surface increases, its potential energy (decreases –increases).
25- Which formula can be used to calculate speed? (distance/time – time/distance)
26- The speed is a measurement of how (long – fast) something is moving.
27- Object that move faster has more (potential – kinetic) energy.
28- When Malak travels with her bicycle a distance of 30 km in 2 hours, then she is moving at a speed of (20 km/hr. – 15 km/hr.).
29- A horse is faster than a human, as the human covers a (less – greater) distance at the same time.
30- (Kilometer – Meter) is a measuring unit for long distances.

31-If the acting forces on a moving body decrease, the speed of this body (decreases – increases).

32-As the angle of inclination increases the speed of object (increases – decreases) and its (potential – kinetic) energy increases.

33-The speed of objects differs according to their (mass – color).

34-Object moves a given distance in a shorter time is moving at a (greater – slower) speed.

35-Which of the following consumes less fuel? (a truck – a small car)

36-Car seat-belt is used to keep the driver from moving (forward – backward) during collision.

37- A train has kinetic energy (more than – less than) the car.

38-Kinetic energy is (lost – transferred) during collision.

Choose the correct answer:

1-When does the ball on the ground move?

a)It won't move. b) when a force acts on it.

c) when light falls on it. d) when gravity increase.

2-Which of the following indicate motion?

a) bicycle b) sunlight c)running water d) guitar string

3-When a body moves forward, the change that occurs is in ……..

a) the position of the body. b) the size of the body.

c) the mass of the body. d) the Earth's gravity.

4-Objects need a force to move, this force is called …….

a) pushing force only b) pulling force only

c) pushing and pulling together d) the gravity only

5-All the following considered as force except……..

a) electric b) gravity c) push d) friction

6-All of the following are examples of motion, except……....

a) a running person b) a ball travelling through the air

c) a flying bird d) a sleeping dog.

7-The body moves slow or fast or change its direction due to a …….. acting on it.

a) force b) wind c) gravity d) height

8-When we push or bull a car, this need ……..

a) weight b) mass c) height d) energy

9-The force that makes the ball in the air fall down to the ground is……

a) friction b) gravity c) push d) light

10-The force that occurs when objects rub against each other is ……..…..

a) speed b) friction c) gravity d) wind

11-All of the following are examples of pulling force except……

a)open a drawer b) kicking a ball

c) lifting a bag d)gravity

12-All of the following are examples of pushing force except…….

a)close a drawer b) kicking a ball

c) lifting a bag d) press on electrical switch

13-When ball stands on the ground without moving, the forces acting on it is…….

a) balanced b) unbalanced c) not equal d) pushing up

14-The amount of energy required to move an object through the force acting on is called……..

a) force b) work c) gravity d) pushing

15-When you clap your hands, kinetic energy of your hands becomes……..

a) sound energy only b) heat energy only.

c) sound energy and heat energy. d) chemical energy.

16- Which ball has kinetic energy but not potential energy?

a) a ball rolling down a ramp b) a ball sitting on a high shelf

c) a ball bouncing up and down d) a ball rolling on a flat sidewalk

17-Which type of energy change occurs when a person rides a bike?

a) heat energy changes to potential energy

b) chemical energy changes to kinetic energy

c) solar energy changes to chemical energy

d) kinetic energy changes to nuclear energy

18- Which of the following can store energy?

a) battery b) wire c) plastic d) rubber

19- The chemical energy stored in batteries is considered a form of …….

a) kinetic energy b) potential energy

c) electrical energy d) mechanical energy

20- Heat energy is a type of……..

a) kinetic energy b) potential energy

c) electrical energy d) chemical energy

21- Potential energy of an object depends on……..

a) its mass only b) its shape

c) its height from the earth's surface only

d) its mass and its height from the earth's surface

22- In …….. electrical energy changes into heat energy.

a) battery b) electric iron c) radio d) hand bell

23- When roller coaster stops its kinetic energy……..

a) increased b) decreased c) doesn't change d) becomes zero

24- The roller coaster has the most energy of motion when it…….

a) moves up to the top of hill b) moves down along the hill

c) stops at the top of hill d) stops at the bottom of hill

25- Scientists classify all forms of energy into 2 types which are…….

a) chemical energy and kinetic energy

b) potential energy and kinetic energy

c) potential energy and electrical energy

d) sound energy and light energy

26- Chemical energy can be stored in……..

a) food b) batteries d) fuel d) all the previous

27- How is speed measured?

a) distance traveled per unit of time

b) time per unit of distance traveled

c) mass per unit of distance traveled

d) volume per unit of mass

28- If a Car covered a distance of 10 meters in a time of 2 seconds, so the speed of the car is…….

a) 50m/sec. b) 20m/sec. c) 5m/sec. d) 2m/sec.

29- The amount of kinetic energy of an object increases as …….increases.

a) speed only b) mass only c) force only d) all the previous.

30- Gana is going down the slide. Her mother gives her a push. How does the push affect her motion down the slide?

a) The push decreases her speed.

b) The push increases her speed.

c) The push does not affect her speed.

d) The push stops her downward motion.

31- Which one of the following may cause the most damage?

a) A fast and heavy Vehicle. b) A slow and light Vehicle

c) A Big Vehicle. d) a and c

32- …… is (are) from the most important equipment during collision.

a) Brakes b) Car seat-belt c) Air bag d) b & c

33- Air bags are made of ……..…..... material.

a) thin b)rubber c) nylon d) a and c

34- From the elements which cause danger while driving cars……..

a) car tires b) seatbelts c) fast driving d) no correct answer

35- The collision between the bat and the ball results in ……..

a) Kinetic Energy b) Sound Energy

c) electric energy d) a and b.

36- Fast objects cause ……..

a) great damage that can be repaired.

b) great damage that can't be repaired.

c) small damage that can be repaired.

d) small damage that can't be repaired.

37- The effect of collision depends on the …… of the moving objects.

a) speed b) direction c) color d) a and b

38- The collision between two moving objects produces …… energy.

a) kinetic b) heat c) sound d) all the previous.

39- During collision, kinetic energy …… .

a) transfers from the slow object to the fast object.

b) transfers from the fast object to the slow object.

c) is destroyed and lost in the air.

d) changes into potential energy.

40- The effect of collision increases by …… the speed of the moving object.

a) increasing b) decreasing c) keeping d) no correct answer.

41- During the collision of moving bodies, …… .

a) energy transfer occurs. b) energy changes occur.

c) damage occurs. d) all the previous.

42- The car with speed …… has the highest kinetic energy.

a) 100 km/h b) 80 km/h c) 60 km/h d) 40 km/h

43- The kinetic energy of an object sliding on a ramp depends on the …….

a) angle of the ramp. b) mass of the object.

c) height of the ramp. d) all the previous.

44- In Newton's cradle the ball stores potential energy when ……

a) the ball is raised up. b) you leave the ball.

c) the ball hits the 1st other ball. d) no correct answer.

45- In Newton's cradle the potential energy is converted gradually to kinetic energy when ……

a) the ball is raised up. b) you leave the ball.

c) the ball hits the 1st other ball. d) no correct answer.

46- By increasing the mass of the object …….

a) The consuming fuel increases. b) the kinetic energy increases.

c) cause more damage during collision. d) all the previous.

47- What happens to the direction of the ball when hit with a bat?

a) Stay constant. b) Moves in the same direction.

c) Moves in a different direction. d) no correct answer.

Write the scientific term:

1-A change in the position of an object relative to a fixed point. (Motion)
2-The ability to do work or make a change. (Energy)
3-A force that moves an object away from you. (pushing force)
4-The force that tries to slow or stop an object moving on a surface. (friction force)
5-The form of energy that increases when the speed of an object increases. (kinetic energy)
6-A type of fuel that is used inside gas oven to obtain thermal energy. (natural gas)
7-A type of fuel that is used inside car to obtain kinetic energy. (gasoline)
8-The distance travelled in a certain amount of time. (speed)
9-A very heavy steel ball that helps knock down walls. (Wrecking ball)

Put (√) or (X) in front of the following statements:

1-When we push a car hardly, the car moves slower and covers long distance. (X)
2-The stopping object can't move until force acting on it. (√)
3-Force and energy are different but they are related to one another. (√)
4-When object moves upward the force acting on it is balanced. (X)
5- A force always causes movement. (X)
6-A force is a push or a pull. (√)
7-A static ball moves on the ground if it is affected by a force. (√)
8-The rotation of Earth around the sun is easy to be seen. (X)
9-The shockwave truck is one of the fastest and most powerful trucks in the world. (√)
10-If you move a chair through a distance, there is a work done. (√)
11-Human needs energy stored in food to do activities. (√)
12-Moving object has higher potential energy. (X)
13-In electric lamp the electrical energy changes to light and thermal energy. (√)

14- When you kick a ball, kinetic energy is produced. (√)
15- Existing energy can be destroyed or lost. (X)
16- In the electric fan, the kinetic energy is converted into electric energy.(X)
17- Energy can be stored in many different forms. (√)
18- Energy can't be changed from one form to another. (X)
19- The moving objects only have energy, while the objects that don't move have no energy. (X)
20- When a car crashes into a wall, it will not stop. (X)
21- We can see the movement of electricity through a wire. (X)
22- The faster the speed of an object, the shorter distance it can travel in a set time. (X)
23- Energy is neither destroyed nor created from nothing. (√)
24- The faster the speed of an object, the less amount of time it takes to travel a set distance. (√)
25- The speed of an object increases as the amount of time traveled increases. (X)
26- The speed of an object is affected by the direction of this moving object. (X)
27- The speed of an object is measured in (m/sec) and (km/hr). (√)
28- All objects move at similar speeds around us. (X)
29- If you want an object to go slower, you must reduce its kinetic energy.(√)
30- The more force applied to an object, the faster it goes. (√)
31- As the speed increases the potential energy increases. (X)
32- Objects has a big mass has less kinetic energy. (X)
33- Energy can be transformed easily from one form into another form. (√)
34- Light objects cause damage more than heavy objects. (X)
35- Kinetic Energy is transferred when two objects hit each other. (√)
36- Faster and heavier objects have more energy than slower lighter objects. (√)
37- The speed and kinetic energy of moving object on a ramp increased by decreasing the angle of the ramp. (X)
38- Slow moving object has less energy and causing less damage. (√)

Correct the underlined words:

1-Parked car is affected by unbalanced force. (balanced)

2-When you move object toward you this represents pushing force. (pulling)

3-Gravity pulls objects upward. (downward)

4-Push or pull actions are considered as types of energy. (force)

5-Any object moves from its place when the forces acting on it are balanced. (unbalanced)

6-There is a gravity force between the car tires and the road that acts to decrease its speed gradually. (friction)

7-A ball at the top of a hill stores electrical energy. (potential)

8- Potential energy is the gained energy during the motion of objects. (kinetic)

9-From the examples of kinetic energy, the bird which stays in its nest. (potential)

10-Pushing a car is an example of potential energy. (kinetic)

11-Gasoline contains electrical potential energy. (chemical)

12-The friction force produces chemical energy. (thermal)

13-Electricity is a form of energy found in the food we eat. (chemical energy)

14-In electric bell, electrical energy changes into light energy. (sound)

15-The kinetic energy increases by increasing the height of the moving object. (speed)

16-The bus that covers 60 kilometers in 1 hour has a speed = 60 m/sec. (km/hr)

17-Damage will be less severe when two cars collide in the opposite direction. (same)

18-Heavy objects always have less kinetic energy. (Light)

Choose from column (B) what suits it in column (A):

Column (A)	Column (B)
1-Used to knock down parts of a building.	a) Seatbelt
2-The air bag inflates automatically	b) after collision
3- Used in cars to keep body from moving forward.	c) sound energy
4- During collision, part of the kinetic energy changes into	d) Wrecking ball
5- The air bag deflates fast	e) during collision

1	2	3	4	5
d	e	a	c	b

Give reason for the

1-When you kick a ball laying on the ground, it moves.

- Due to the pushing force of your leg that acts on it.

2-If you let a pen out of your hand, it falls to the ground.

- Due to the pulling force of the gravity downward.

3-If you push a ball on the table it moves for a distance till it stops.

- Due to friction force between the ball and the table.

4-The Shockwave truck is faster than the normal truck.

- Because the Shockwave truck has three jet engines.

5-Engineers use parachutes in the Shockwave truck designs.

- To help slow down the Shockwave truck.

6- The speed of roller coaster increases when it moves down the hill.

- Because its kinetic energy increases.

7- When a player kicks a ball it moves in air.

- Because the kinetic energy transfers from the player's foot to the ball.

8- A bird stops on a tree has energy.

- Because it has potential energy due to its height from the ground.

9- When a stone is thrown upwards, its potential energy increases.

- Because its height increases.

10- When you hit a traffic sign post it may vibrate.

- Because kinetic energy is transferred from my body to the sign post.

11- Seatbelts are very important equipment in cars.

- To prevent body move forward.

12- When two objects collide with each other, you can hear a sound.

- Because a part of kinetic energy changes into sound energy.

13- A truck needs a bigger engine than that of a small car to move with the same speed.

- Because the truck has more mass than the car.

14- The truck causes more damage than cars during collision although they move at the same speed.

- Because the truck has big engine and more kinetic energy than cars.

What happens if……?

1- The pulling forces of the two teams are equal in the tug-of-war game.

- The rope will not move.

2- You kick a stopped ball on the ground.

- It starts to move on the ground.

3- You let your toy out of your hand.

- It will fall down on the ground due to the pulling force of gravity.

4- If there were no energy on earth.

- Nothing would get done.

5- Increasing the mass of an object that moves down a ramp.

(according to the kinetic energy)

- The kinetic energy increases.

6- You turn on the T.V. (according to the change of energy).

- Electrical energy is converted into light and sound energy.

7- The roller coaster moves down the hill.

(according to the change of energy)

- Potential energy changed into kinetic energy.

8- You put a battery inside a flashlight then switch it on.
(according to the change of energy)

- Chemical energy is changed into light and thermal energies.

9- If you operate a washing machine. (according to the change of energy)

- The electrical energy changes into mechanical energy.

10- The moving cricket bat hits a ball. (according to the transfer of energy).

- The kinetic energy of the bat transfers to the ball.

11- The speed of a moving car increases. (according to kinetic energy)

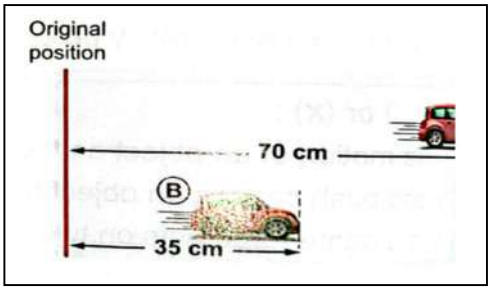
- Kinetic energy will increase.

12- You let the ball of Newton's cradle moves toward the rest of balls.
(according to the change of energy)

- Potential energy changed into kinetic energy.

Answer the following questions:

1- Which of these 2 cars is affected by a greater Force? Explain why?



Car (A) because it moves longer distance than car (B)

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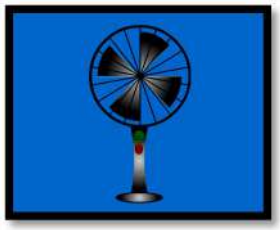
2- In picture (1) energy is changed from electrical energy to sound energy.

In picture (2) energy is changed from electrical energy to kinetic energy.

(1)


(2)

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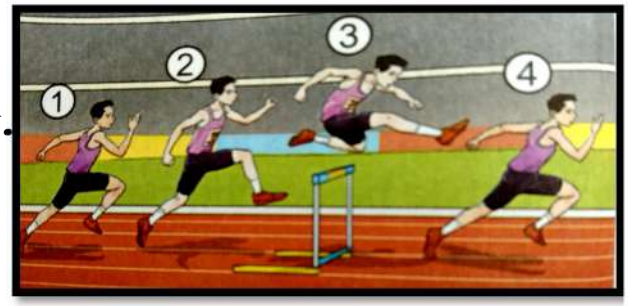
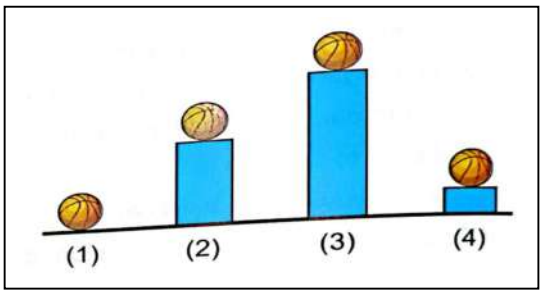
3- In the opposite picture position (3) represent the most ……energy.
(potential – kinetic)



4- In the opposite figures which ball has the greatest potential energy?
Explain why?
Ball number (3), because it has the greatest height.



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5- In the opposite figure:

When the compressed spring is released, a change in energy occurs from elastic potential energy to kinetic energy.

****

6- From the following figure complete:

(different – wooden – bat – sound – ball – increases – kinetic)

a) The boy uses a wooden bat to hit the ball.

b) Kinetic energy is transferred from the bat to the ball.

c) When the boy hit the ball the speed of the ball increases in different direction.

d) During collision some of the kinetic energy changed into sound energy.

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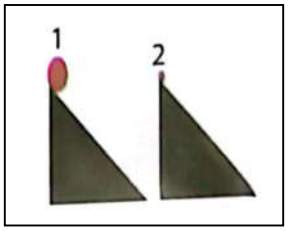
7- From the following figure that shows Newton's cradle complete:

a) When the ball is raised up, it stores potential energy.

b) When leaving the ball moves in the direction of the rest balls the potential energy decreases and kinetic energy increases.

c) During collision some of the kinetic energy changed into thermal energy due to the friction.

8- In the opposite figure which ball will reach the ground first? Explain why?



Ball number 1 will reach the ground first, because it has a big mass than ball number 2.

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9- Calculate that speed of a runner that covers 150 meters in 10 seconds.

Speed = distance ÷ time = 150 ÷ 10 = 15 m/s

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10- Calculate the speed of a train that covers 600 kilometers in a time of 6 hours.

Speed = distance ÷ time = 600 ÷ 6 = 100 km/hr.

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11- Find the speed of a runner, if you know that he covers 400 meters in 80 seconds.

Speed = distance ÷ time = 400 ÷ 80 = 5 m/sec.

****

12- If the two cars moved at the same time for 20 seconds, car (A) covered a distance of 100 meters, while car (B) covered a distance of 300 meters. Which of the two cars has a higher speed?

Car (B), because it travels longer distance than (A).

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13- If one runner travels 10 kilometers in 1 hour and a second runner travels 10 kilometers in half hour. Which of the two runners has a higher speed?

The second runner, because it takes shorter time.

Cross out the odd word:

1- Sound energy – light energy – chemical energy – thermal energy.

2- Sound energy – light energy – electrical energy – thermal energy.

3- Speed – color – time – distance.

Best wishes
Dr/ Zeinab Salah